DMTCE OU4 CAP 2.2

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SPFD BRANCH
REGION VII

TITAN WHEEL INTERNATIONAL INC.

September 1, 1994

Site: Des Moines TCE
ID #: IAD980687933
Break: 10.9 Draft Rep Revised
Other: Workplan
Cancel 9.1.94

United States Environmental Protection Agency
Region VII - Superfund
726 Minnesota Avenue
Kansas City, KS 66101

ATTN: Glenn Curtis
Remedial Project Manager

30215691
Superfund

RE: Des Moines TCE Site
Final Revision
Surface Remediation Work Plan

Dear Mr. Curtis:

Please find enclosed a revised Surface Remediation Work Plan. This revision incorporates the responses to the USEPA comments dated August 5, 1994 which were previously provided by Titan Wheel International, Inc. in the Work Plan Supplement dated August 8, 1994.

If you have any questions concerning this please call me at (217) 221-4461.

Sincerely,

James P. Fechter

James P. Fechter
Environmental Engineer

cc Jerry Shanholtzer
File

2701 SPRUCE STREET • QUINCY, ILLINOIS 62301 USA
TELEPHONE: (217) 228-6011 • FAX: (217) 228-9871

WORK PLAN

SURFACE REMEDIATION
DICO, INC.

DES MOINES, IOWA

PREPARED BY:

TITAN WHEEL INTERNATIONAL, INC./
DYNEER CORPORATION
ENVIRONMENTAL ENGINEERING DEPARTMENT

August 29, 1994

WORK PLAN
SURFACE REMEDIATION
DICO, INC.
DES MOINES, IOWA

TABLE OF CONTENTS

WORK PLAN
SURFACE REMEDIATION
DICO, INC.
DES MOINES, IOWA

1.0 INTRODUCTION

Titan Wheel International, Inc./Dyneer Corporation Environmental Engineering Department (Titan) has prepared this Work Plan in accordance with the Administrative Order (Order) issued by the United States Environmental Protection Agency (USEPA) for the DICO, Inc. (DICO) facility in Des Moines, Iowa. This action will be performed to remediate a potential threat to public health and the environment that may be present by an actual or threatened release of hazardous substances from the DICO property. All actions to be performed under this Order will be conducted in accordance with CERCLA, the NCP, and USEPA guidelines. The work will be performed by Des Moines Asphalt Company whose qualifications are provided in Appendix A.

This work plan has been prepared for submittal to the USEPA and demonstrates those actions to be taken to bring the DICO facility in compliance with USEPA applicable regulations. The preparation of this work plan consisted of reviewing all available information, developing a comprehensive strategy to comply with regulatory requirements for human health and safety, and performing the necessary activities to achieve a safe environment for the ongoing industrial use of the facility and any future remedial actions that may be required at the site.

1.1 BACKGROUND

The DICO facility is located at 200 SW 16th Street in the City of Des Moines, Iowa. The subject facility is part of a set of continuous properties listed by USEPA on the National Priority List known as the Des Moines TCE Site.

Field investigations by USEPA were initiated when trichloroethene (TCE) was detected in groundwater drawn from a nearby gallery at the Des Moines Water Works (DMWW) facility. The resulting Des Moines TCE Site that was designated by the USEPA consists of a portion of the DMWW property, certain light industrial/commercial operations to the north of the Raccoon River including the Meredith Corporation and the Des Moines School System's Tech/Central Campus, the DICO property to the east of the Raccoon River, the Tuttle Street landfill to the east, and the Frank DePuydt Woods. In all, the Des Moines TCE Site contains over 200 acres.

1.2 OPERABLE UNIT No. 4 (OU4)

Based on the results of soil and sediment samples taken during the source control OU2 investigation, a portion of

the original OU2 area was identified to contain pesticide contamination, primarily Aldrin, Dieldrin, Chlordane, Heptachlor, and PCBs (within roof insulation only). These contaminants have been identified within Buildings No. 1 through No. 5 and the Maintenance Building based on the results of various dust, wipe, insulation, and product surface sampling activities. Laboratory tests have indicated that these chemicals are toxic and their commercial use was accordingly severely restricted in the 1980's. The presence of these pesticides on the DICO property results from the operation, during the 1950-1970 period, of DiChem, Inc., a formulator of pesticides. For a period of time, under a contract with Shell Oil Company, Aldrin, owned and supplied by Shell, was heated to liquid form in a tank used exclusively for that purpose and sprayed onto fertilizer. Shell then sold the product. Similarly, under contract with Chevron Chemicals Company, DiChem prepared lawn fertilizer containing herbicides and pesticides (Chlordane and Heptachlor) which Chevron then sold. Other pesticides and herbicides were prepared or stored and distributed by DiChem for Monsanto, Chemagro, and American Oil Products (Amoco). In each instance, the pesticide materials were continually owned by the manufacturers for which the formulation activities were performed. The PCB source within the buildings is believed to be the adhesive used for securing the insulation.

There are three (3) separate and distinct elements to the pesticide problem: a) the pesticides (i.e.; Aldrin, Dieldrin, pesticides, and inorganics within OU2; Aldrin, Dieldrin, pesticides, dioxin, and PCBs within the OU4 buildings) on the interior surfaces of the DICO buildings; b) the former Aldrin mixing tank and immediate surrounding surface soil outside the "Maintenance Building"; and, c) partially characterized and totally uncharacterized areas of OU4 that are generally located south and east of Building No. 5.

Within the OU4 area prior sampling and investigative efforts have indicated the presence of VOCs within the soil and, to a lesser extent, pesticides were also detected at minimal levels. The sampling efforts included surface sampling, subsurface sampling, soil borings, and groundwater monitoring. Based on these activities and an understanding of the site history, the potential sources of these contaminants can be identified. The presence of VOCs in the soil can be traced to the following locations: the drum cleaning area, the former vapor degreasing vat, the solvent storage tanks, the former rail car unloading area, and the former drum fill area. These areas and areas potentially affected by the operations are provided on Figure 1. The above operations involved the handling of solvents which, by all indications, is the probable source of VOCs in the soil.

Pesticide contamination in the OU4 area is widespread but sampling efforts show that the concentrations present are relatively low. Potential sources of the pesticides include the presence of pesticide contaminated material in the fill areas south of the production building, releases during material loading/unloading operations, or by fugitive dust spread by wind.

As recommended by the USEPA, further soil sampling in OU4 was conducted in January, 1994. Thirty-five samples were collected at the surface and were analyzed for pesticides, herbicides, and the dioxin compound 2, 3, 7, 8-TCDD. The sample locations and analytical results are provided in Appendix B.

2.0 OBJECTIVE

The objective of this work plan is to outline the actions for remediation of the OU2 and OU4 soil areas that will result in the encapsulation of hazardous substances, pollutants, or contaminants that may be released into the environment. Information collected from previous reports and investigations have been utilized as a basis for the development of this plan.

The implementation of this work plan will encapsulate the surface soil within the OU2 and OU4 area with an asphalt covering, safely and economically, to protect human health and safety at the facility. The asphalt cap will cover all areas of the DICO facility where past investigations have indicated levels of aldrin/dieldrin combinations have exceeded 0.015 mg/kg and also where lead has exceeded 1,000 mg/kg. The installation of the asphalt cap will minimize the infiltration of surface waters to groundwater, prevent direct exposure to personnel, and prevent off-site migration through equipment and personnel traffic and windblown material. This will allow ongoing industrial use of the facility and generate a continued economic base for the local and regional area. To ensure the asphalt capping continues to protect human health and the environment in the future, an Operation and Maintenance Plan (Appendix C) will be instituted to prevent and, if necessary, repair damage to the cap. The asphalt cap is being constructed under a construction permit from the City of Des Moines Permit and Development Center and meets the required specifications for this type of structure. Information concerning the construction specifications are provided in Appendix D.

This remediation effort is being done in conjunction with the Removal Action of OU4 that addresses remediation activities within the buildings. The actual performance of these two projects are not interdependent in terms of work activities. The surface remediation work is expected to be completed in approximately two months of the start date.

3.0 FIELD ACTIVITIES

Prior to the implementation of work activities, personnel will be instructed, in the same manner DICO employees who are exposed to the OU4 area are trained, of the general hazards and specific hazards at the site. A Health and Safety Plan (H&SP) prepared by Titan will be available at the site during work activities and all personnel will have the opportunity to review the document (Appendix E). This H&SP will familiarize personnel with the nature of the contaminants present on-site and provide guidance for safe operation and emergency procedures.

Certain on-site personnel will receive training as required by OSHA in 29 CFR Part 1910. This will include the site supervisor and any operators who will be involved in activities that will disturb the ground surface and may be potentially exposed to airborne material. As will be discussed later in this section, grading activities, or any other operation that will disturb the surface, will be kept to a minimum. When grading is required, the OSHA trained personnel will perform the activities while others are kept at a safe distance. Once the rock subbase is put down the potential for exposure to airborne dust will be virtually eliminated allowing safe access for all personnel.

Before any surface preparation is performed, certain sections of the railroad tracks that exist where the asphalt cap is to be placed will be removed. This includes both the metal rails and wood ties. This will prevent future damage to the paved areas that will receive heavy traffic and in general extend the life of the entire cap. It is expected that approximately 750 feet of railroad tracks will be removed in preparation for the heavy traffic areas to be paved and approximately 650 feet of railroad tracks will be removed from the nontraffic areas.

Removal of the railroad tracks will be done in a manner that minimizes disturbance of the surface soil. The railroad ties and rails will be removed by mechanical means, such as a forklift or trackhoe. This equipment will be used to separate the rails from the wood ties and remove the wood ties from the ground. Some hand work may be required by the operators in order to accomplish this. The rails will be wiped down adjacent to the area where they were removed from but not over the ties below. Any material that falls loose from the rails will be allowed to settle at the location they were removed. The rail and ties will be staged onsite as they are removed, probably in the current parking area located at the north end of the property. The rails and ties will be stored onsite for future uses that may include reuse at another DICO facility or for other situations that may arise.

Surface preparation will consist mainly of addition of material to bring the surface to the required grade. Approximately 3,500 tons of granular fill will be used to prepare the surface grade. Grading and scraping of the surface will be kept to a minimum and thus disturbance of the existing surface soil will be limited. Since grading of the soil will be limited it is expected that dust generation will also be limited. Also, much of the ground area to be asphalted is covered by vegetation or gravel driveways. In the event that activities may generate dust, all efforts will be made to minimize and control its generation. This may include wetting down areas that contain significant amounts of loose and dry material. Upon the completion of surface preparation activities, all equipment will be decontaminated prior to leaving the site.

The areas to be paved with asphalt and the corresponding thicknesses are detailed in Figure 2. The areas where trucks and other heavy traffic are expected will have six inches of type "A" hot mix asphalt applied and will have a minimum subbase of 6" granular fill compacted to produce a solid base for the asphalt mix. These areas have been utilized for these activities for many years and have periodically received layers of gravel so it is expected minimal compaction efforts will be required in these traffic areas. The six inch pavement areas will include traffic lanes, truck and vehicle parking areas, loading/unloading areas, and a driveway surrounding the air stripper tower. In the truck parking areas, to protect the asphalt from the trailer stands, a dolly pad will be provided. It will be constructed of concrete and be three feet wide and eight inches deep and run the length of the trailer parking area. The six inch paved area will encompass approximately 62,500 sq. yd. of the surface area at the facility.

Areas where traffic will be prohibited will receive a three inch layer of type "A" hot mix asphalt with a subbase of 3" granular fill compacted to produce a solid base for the asphalt mix. This will include approximately 50,500 sq. yd. of surface area. Overall, 30,000 tons of asphalt will be required, with the majority of asphalt being machine placed and the remaining amounts hand placed due to accessibility restrictions. The asphalt paving will consist of 3/4" base mixture and 1/2" surface coarse material that will contain between 6% and 6 1/2% asphalt cement and 60% crushed limestone. Since these areas will not be subject to traffic, extensive compaction will not be required.

In sections were the traffic and nontraffic paved areas meet, the thicker traffic areas will be tapered down to the three inch level so that a smooth surface transition is constructed. Protective fencing, described below, will be positioned prior to tapering of the thicker traffic areas so that traffic will not damage the areas of decreasing asphalt thickness. Along the asphalt cap edges which border on open land, the cap will be tapered to meet flush with the existing grade. Where the asphalt cap meets buildings, well cases, concrete well bases, and other structures it will run up to the exterior surfaces to prevent surface water from penetrating the cap and entering the ground. Small areas of fenced in surface area, such as the extraction wells, will have a raised curb placed around the exterior of the fence line to prevent water runoff into the exposed surface areas. These fenced in areas currently have a rock base that will remain as is.

To prepare areas where top soil exists, compaction will be performed with a flat roller with an 84 inch drum that weighs approximately 12 tons. It is anticipated that this activity will be required in areas that have not previously served as traffic and/or parking areas. Compaction of the asphalt will be performed with vibratory steel rollers and a smooth faced drum. In order to gauge the quality of the asphalt surface, three tests per day will be performed with a nuclear density machine.

Surfacing of the ground will be done so that the existing drainage patterns are maintained. This will, as Figure 1 shows, be to the south and west into the South Pond Drainage Area. Drainage points will be constructed as wide as practical, without disturbing existing soils, so that the increased volume from the paved surfaces will have minimal effect upon the drainage areas.

Upon completion of the asphalt cap, a barrier will be erected between traffic/parking areas and areas where traffic is prohibited. This will prevent access to the nontraffic asphalt areas and prolong the life of the cap. The barrier will consist of, at a minimum, a single chain fence supported by steel post along all border areas between traffic and nontraffic areas of the asphalt. Signs will be posted along the fenceline declaring the area off limits to both vehicular and personnel traffic.

FIGURE 1

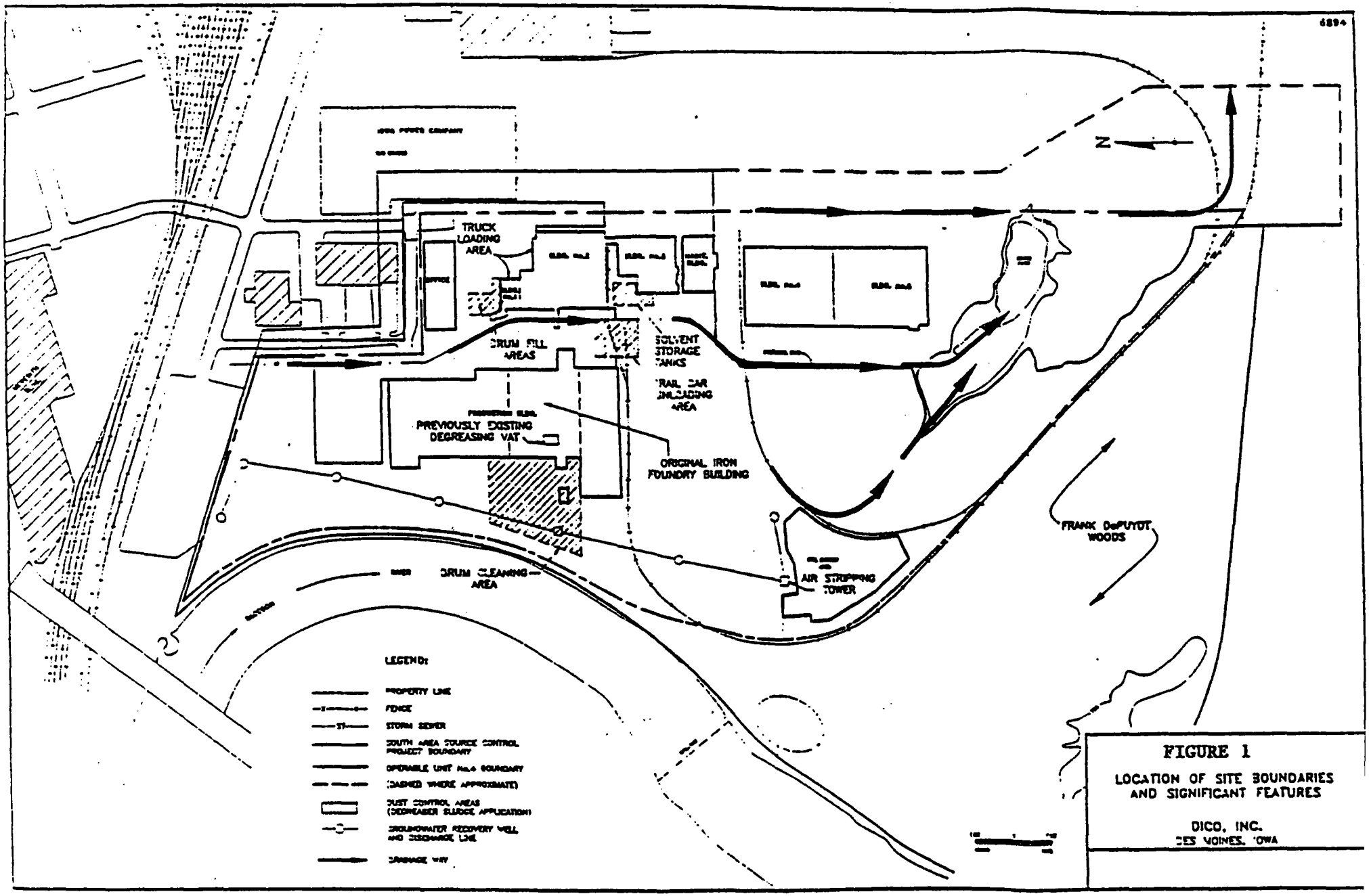
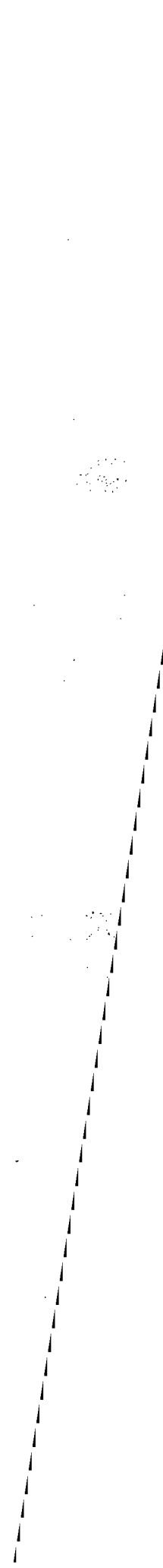


FIGURE 1

LOCATION OF SITE BOUNDARIES AND SIGNIFICANT FEATURES

DICO, INC.
DES MOINES, IOWA

FIGURE 2



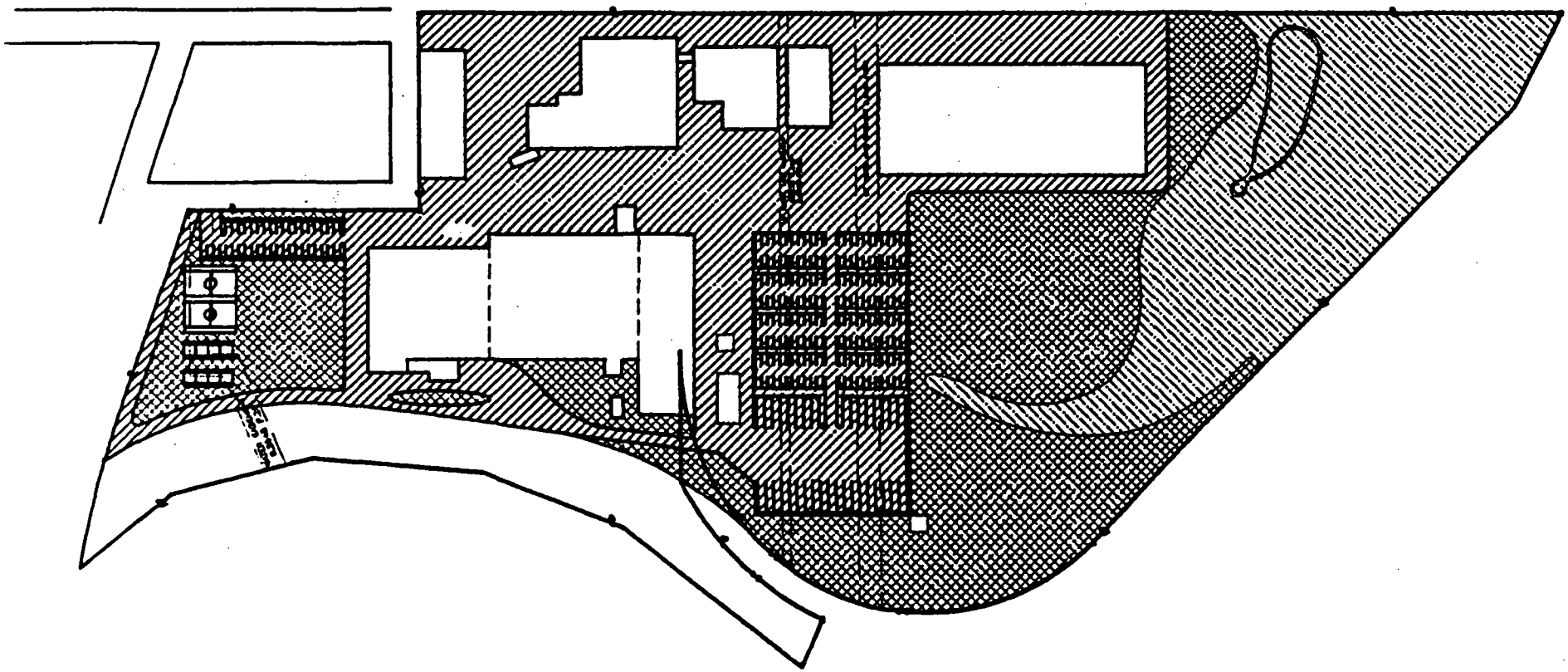


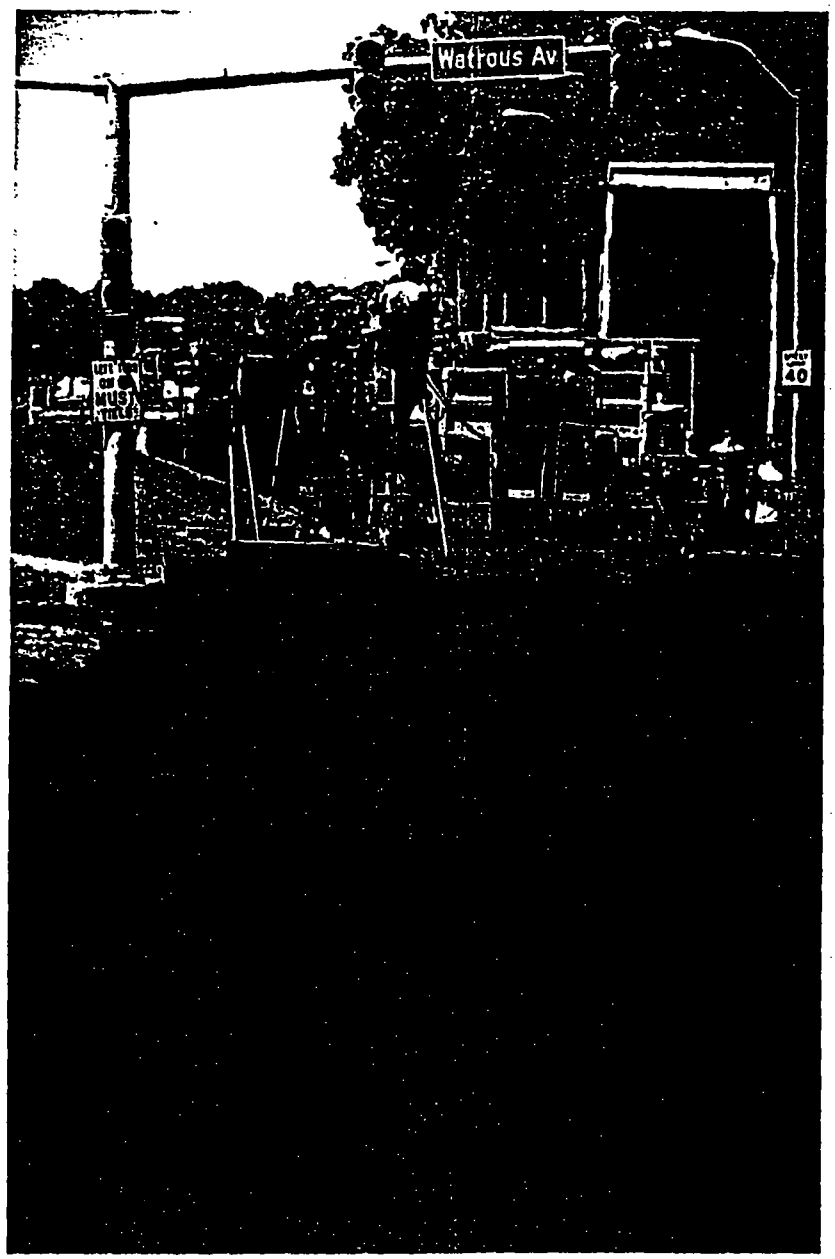
FIGURE 2
PLANNED AREA OF PAVEMENT

APPENDIX A

Des Moines

Asphalt & Paving

Company



Through the finest people, materials, equipment, service and craftsmanship, Des Moines Asphalt & Paving Company has built a superior reputation for the production and placement of asphalt paving.

As a member of the National Asphalt Pavement Association, Des Moines Asphalt and Paving Company has made a commitment to quality.

In making this commitment, Des Moines Asphalt and Paving Company will continually strive to use only the highest quality approved materials, to process them under the continual supervision of trained and capable personnel to the highest standards and to place them in pavements that meet or exceed promulgated specifications with the highest degree of workmanship attainable.

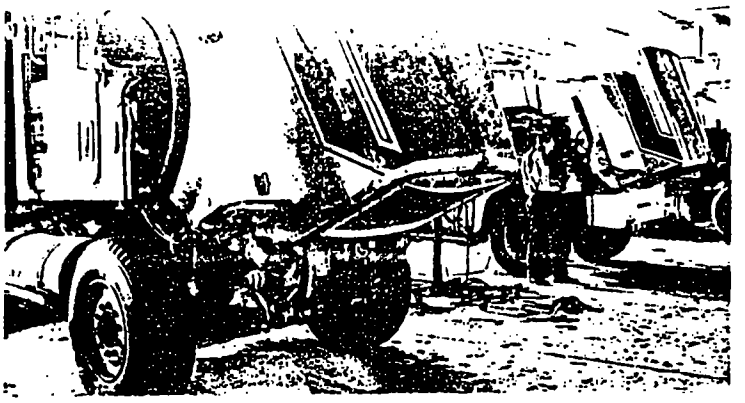
A Tradition of Leadership

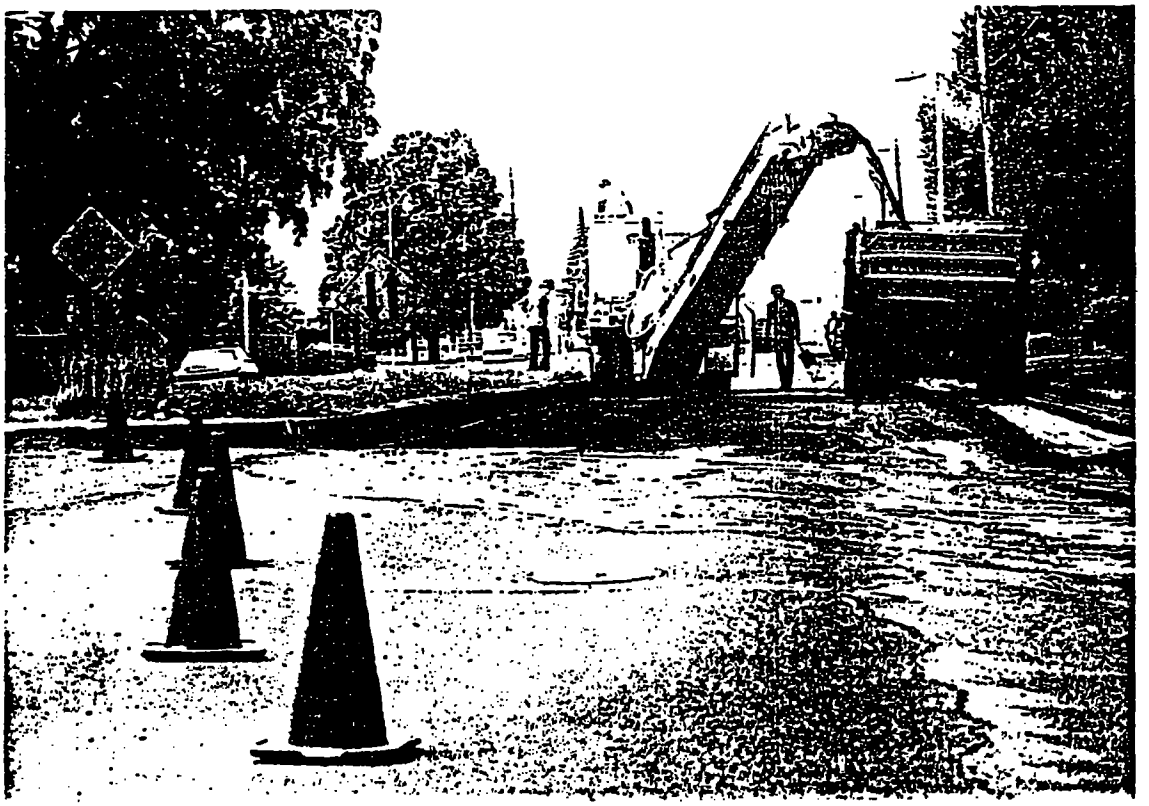
For more than a quarter century, Des Moines Asphalt & Paving Company has been a recognized leader in the pavement construction industry. From hundreds of miles of streets and highways to thousands of acres of parking and industrial facilities, we have laid the foundation for a wide range of successfully completed projects.

The bottom line in every case – in every project, large or small – is quality. Quality people. Quality materials. And quality performance in every aspect of our work.

Our foremen are experienced professionals who ensure that each project is completed according to plans and specifications. By continually monitoring performance and conducting on-site tests, we can be sure that work not only measures up to our clients' expectations, but also to our own standards of excellence. We take great pride in delivering a product of the highest quality while meeting any paving schedule.

Through our own modern automated plants in Des Moines and Ames we produce superior paving materials, processed under the continual supervision of trained and capable personnel. And by carefully monitoring industry research and technical information, we are constantly improving and refining our capabilities.

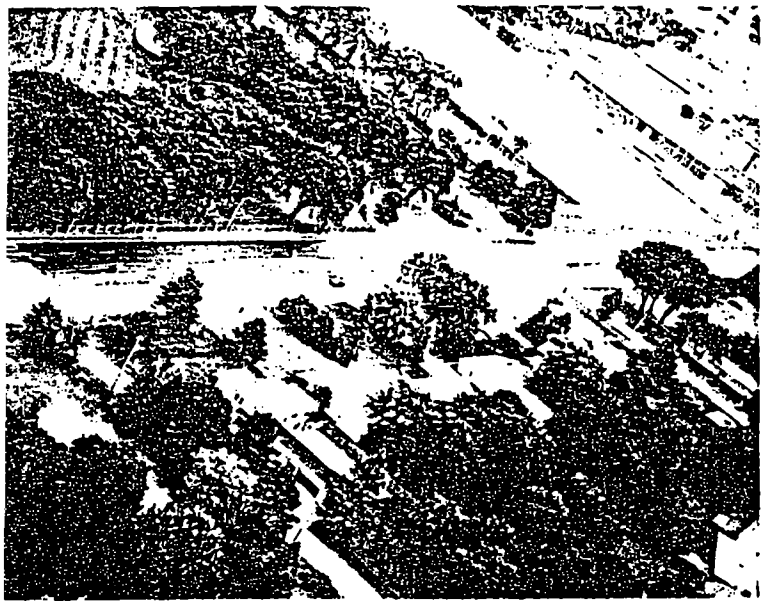


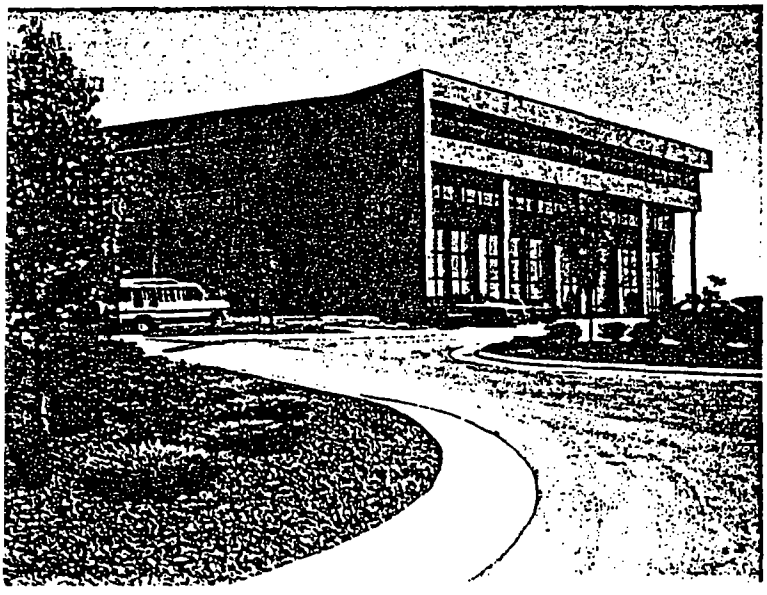


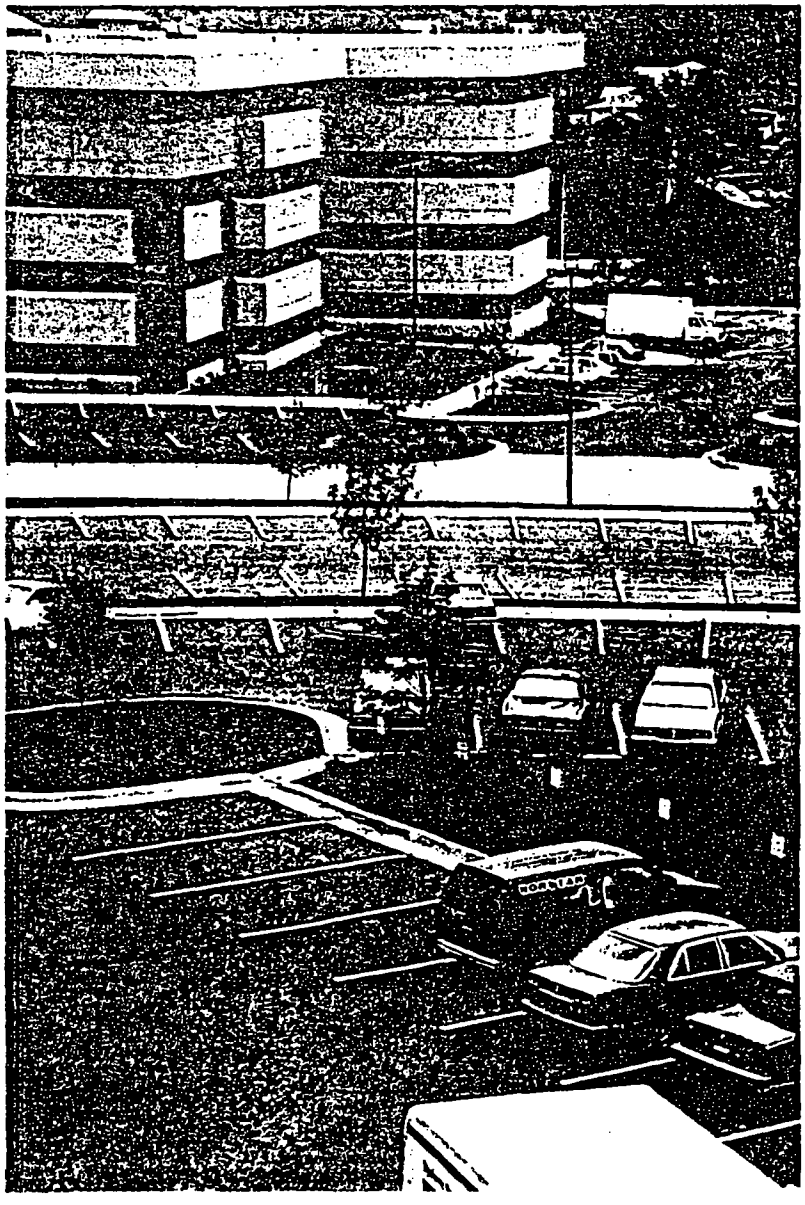
Our large fleet of specialized paving equipment enables us to provide efficiency along the way.

Effective equipment management has a tremendous effect on the time and cost of any construction project. Through our capabilities and experience, we work to strike the optimum balance between efficiency and performance.

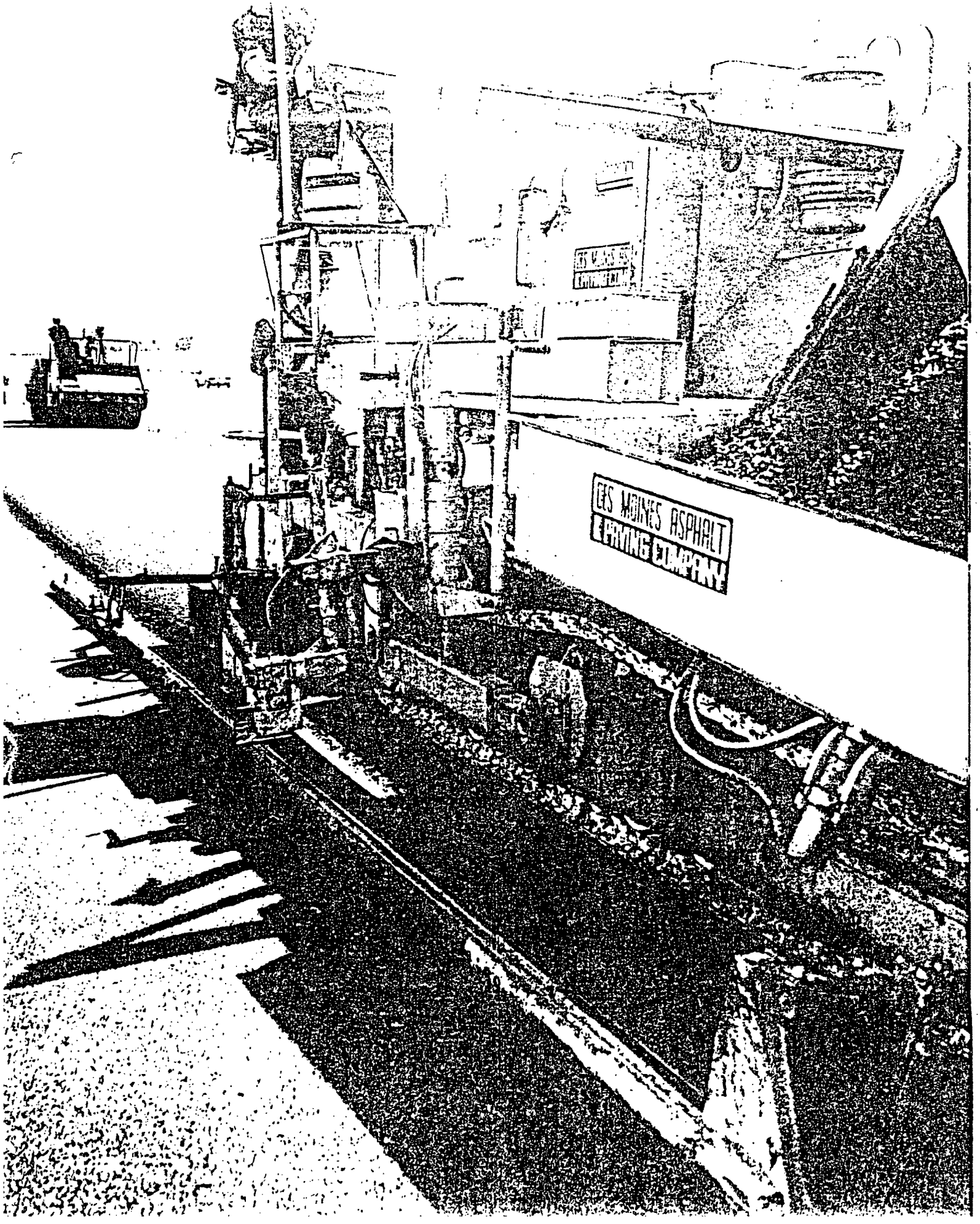
At Des Moines Asphalt & Paving Company, leadership is more than a tradition. It's a basic way of life – a basic way of doing business – that we continually reaffirm every day. We look forward to putting our leadership experience to work for you.

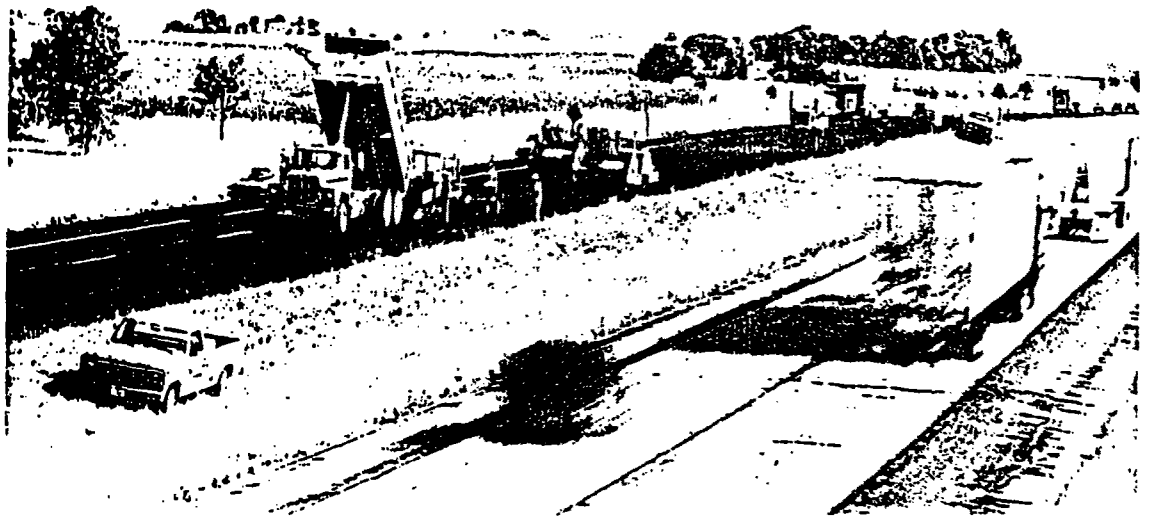


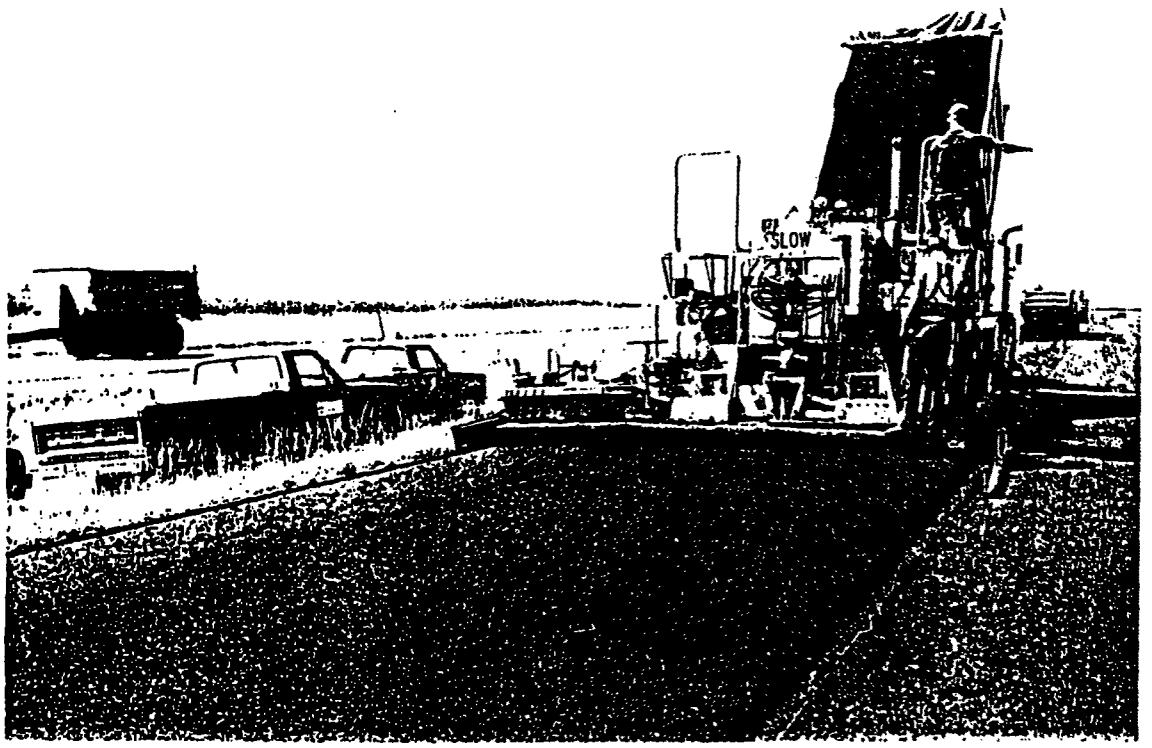


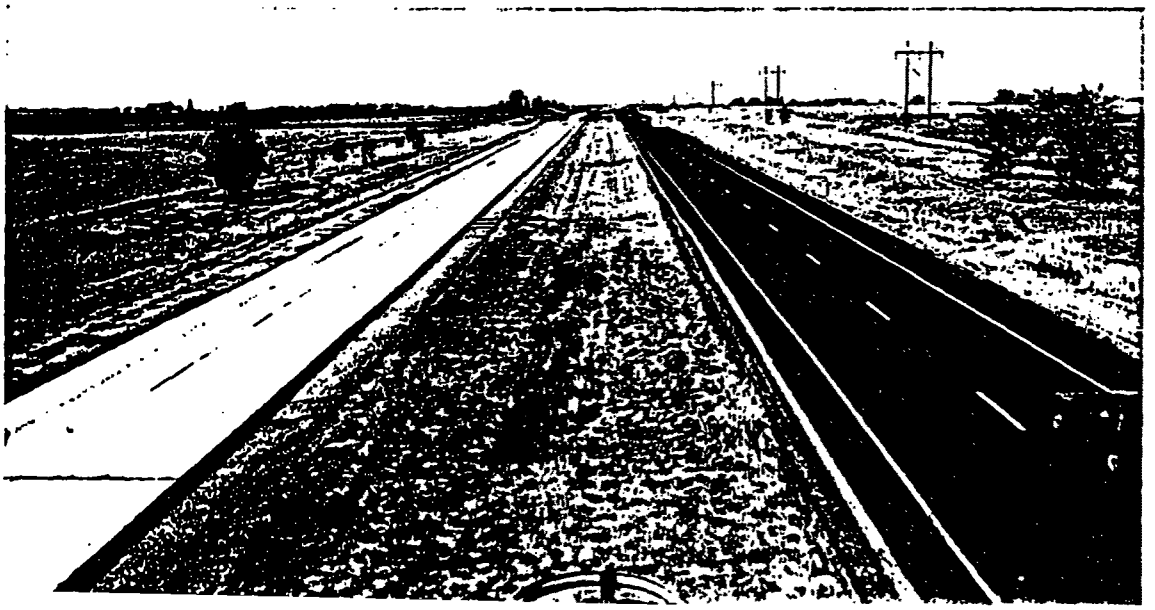


At Des Moines Asphalt & Paving Company, we're literally paving the way to the future. We take great pride in translating innovative construction techniques into successful finished projects.

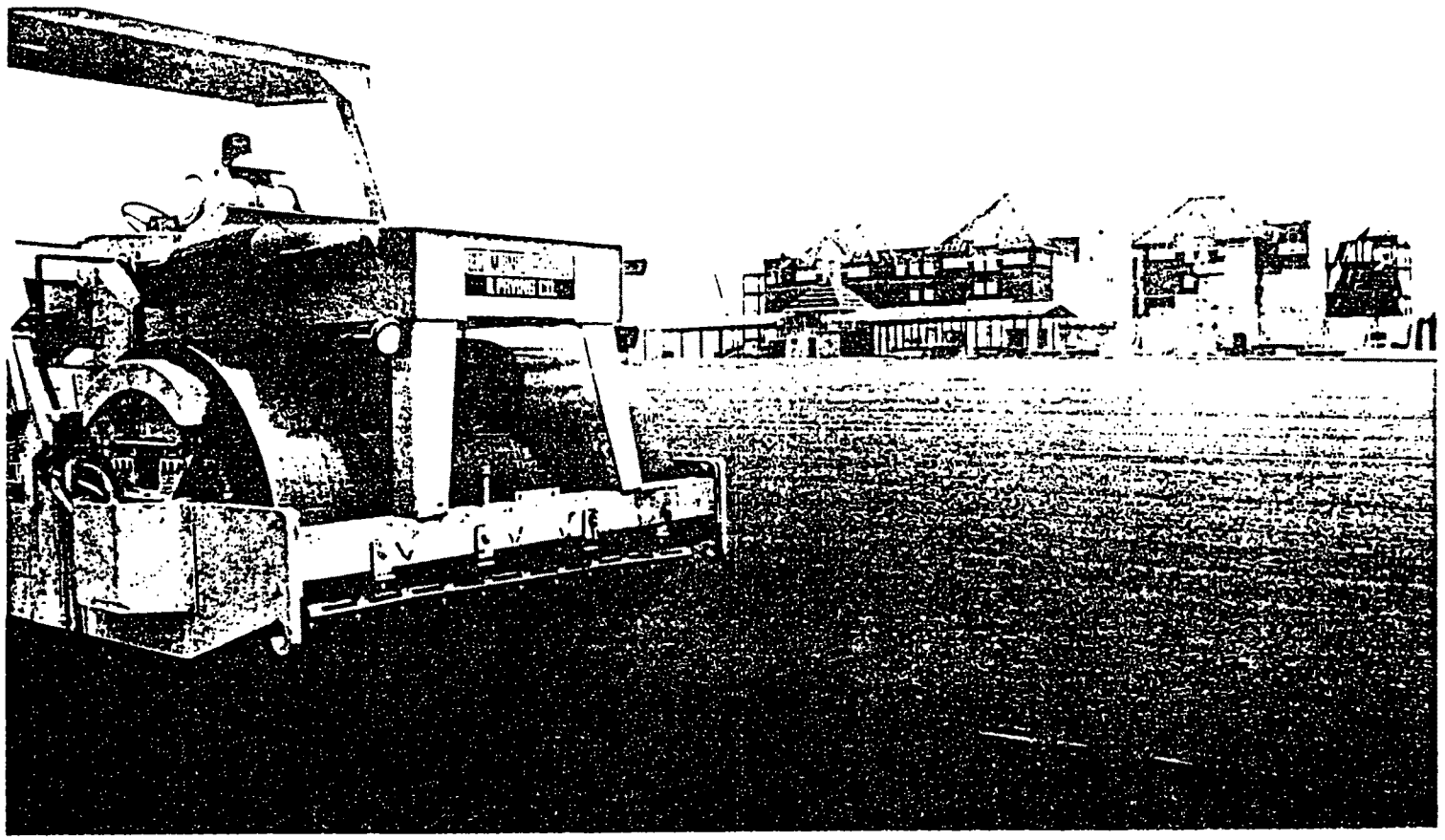

DES MOINES ASPHALT
PAVING COMPANY

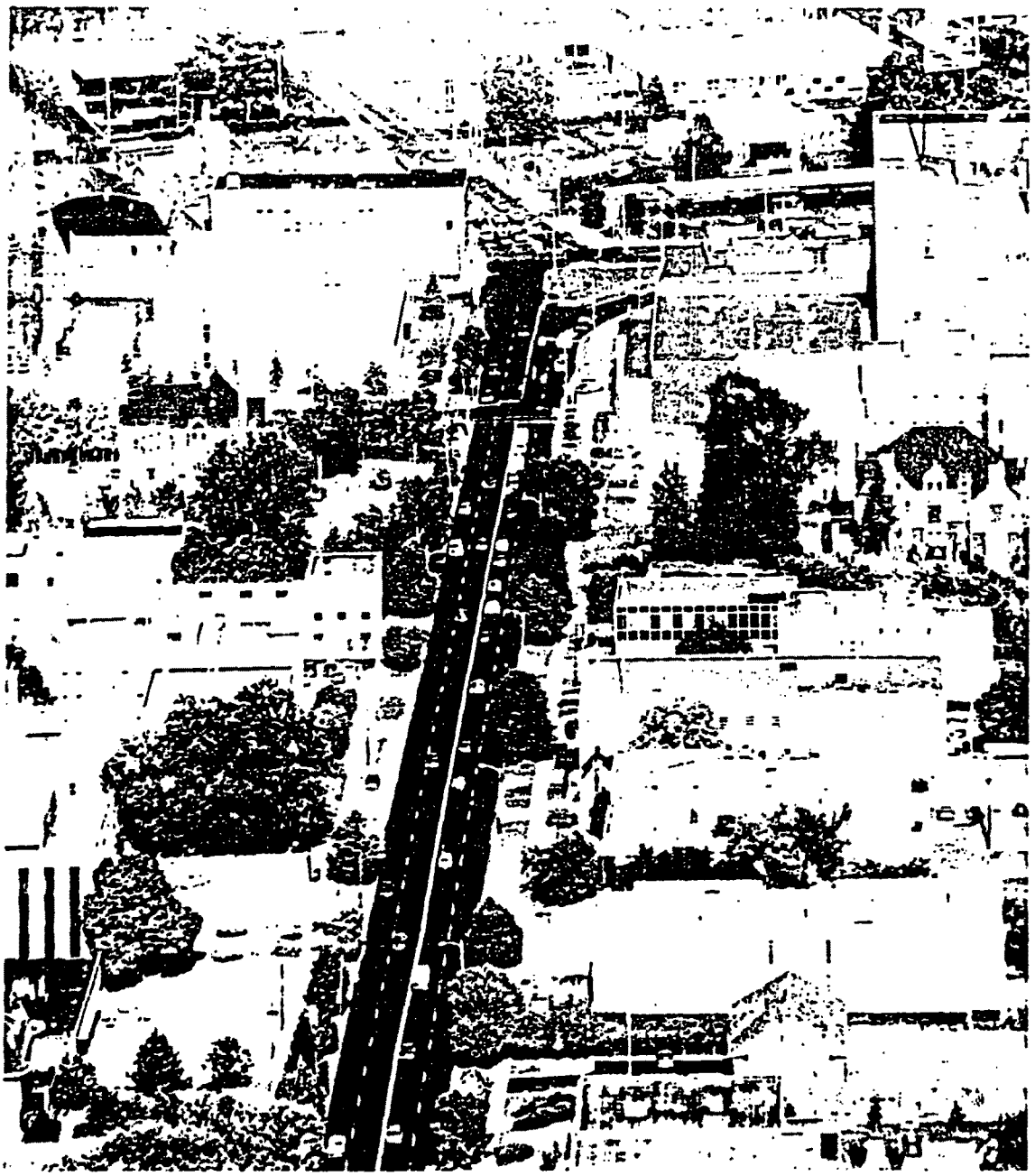


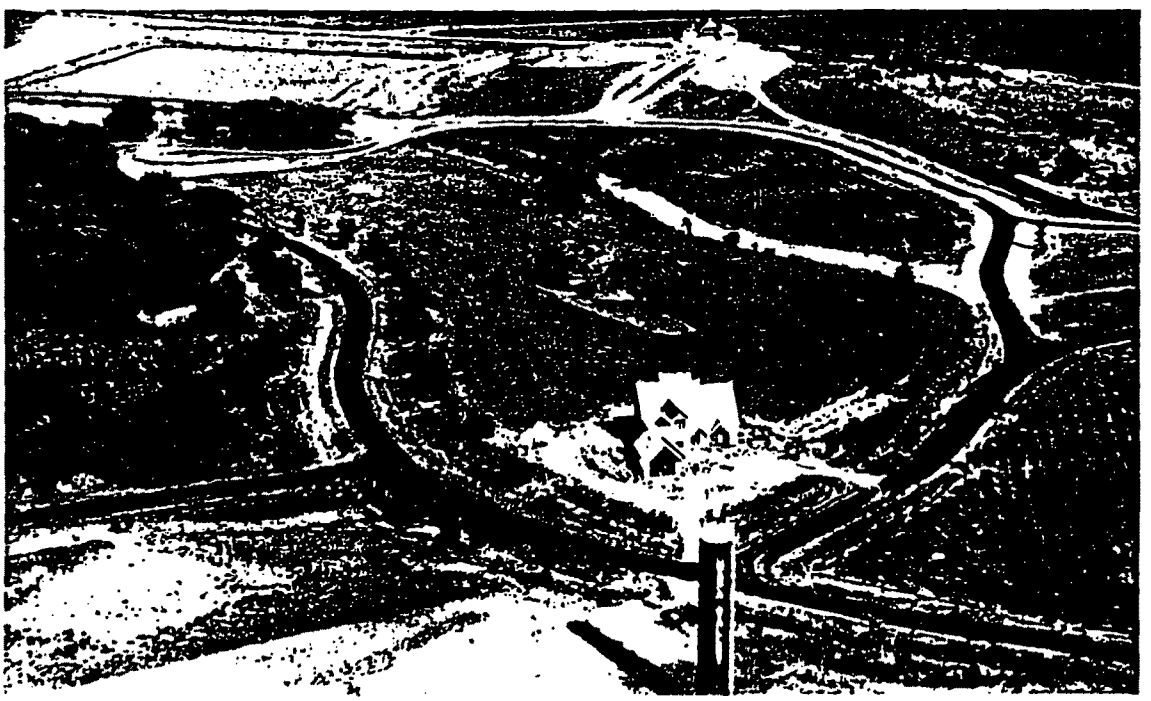




MEMBER
NAPA
NATIONAL ASPHALT
PAVEMENT ASSOCIATION







Proven Performance in all Types of Asphalt Paving.

Our years of experience and our tradition of strong leadership translate into proven performance on the job. We've got the manpower, the know-how, and the equipment to handle any size paving project. What's more, we take pride in every aspect of our performance. No matter what size the project – paving a driveway or an interstate highway – we guarantee our performance. Check our record and you'll find we've proven our commitment to quality for 25 years.


ONLY
Bell Av
MOINES ASPHALT
PAVING COMPANY

People are Our Paramount Resource.

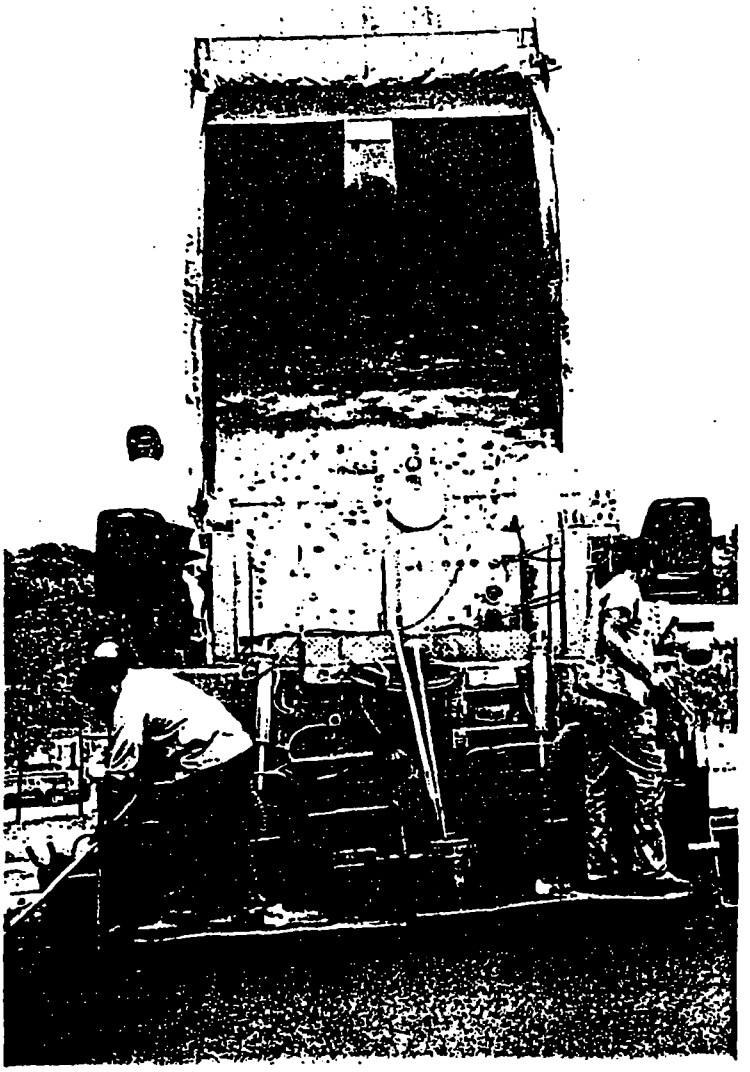
The difference between one business organization and another is people. It takes people to operate the equipment, manage the finances, program the computers and provide the services.

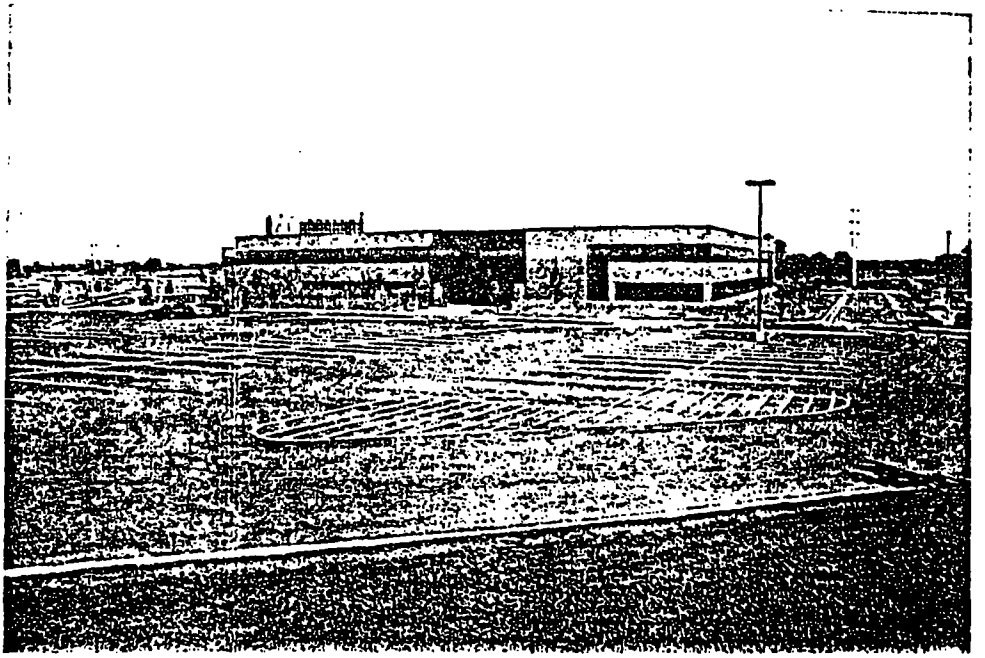
Having the right people – experienced and responsible – has enabled us to become a successful company that delivers satisfaction to our clients.

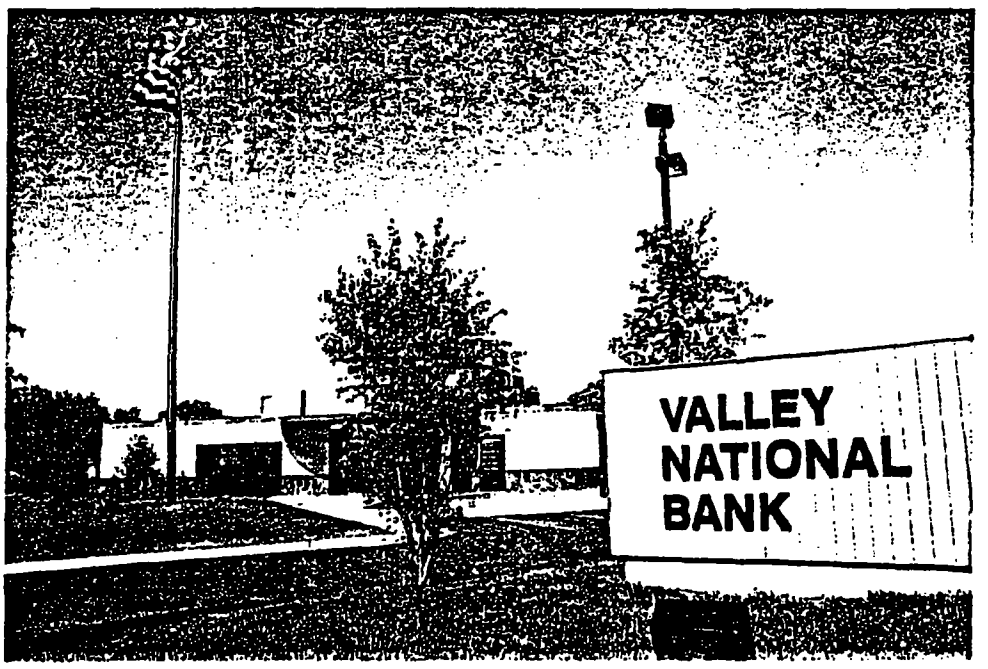
From our management ranks to the field, we place tremendous emphasis on hiring people with solid backgrounds in the pavement industry – people who are characterized by personal integrity and a commitment to straight-forward, performance-oriented business dealings with clients, associates and suppliers.

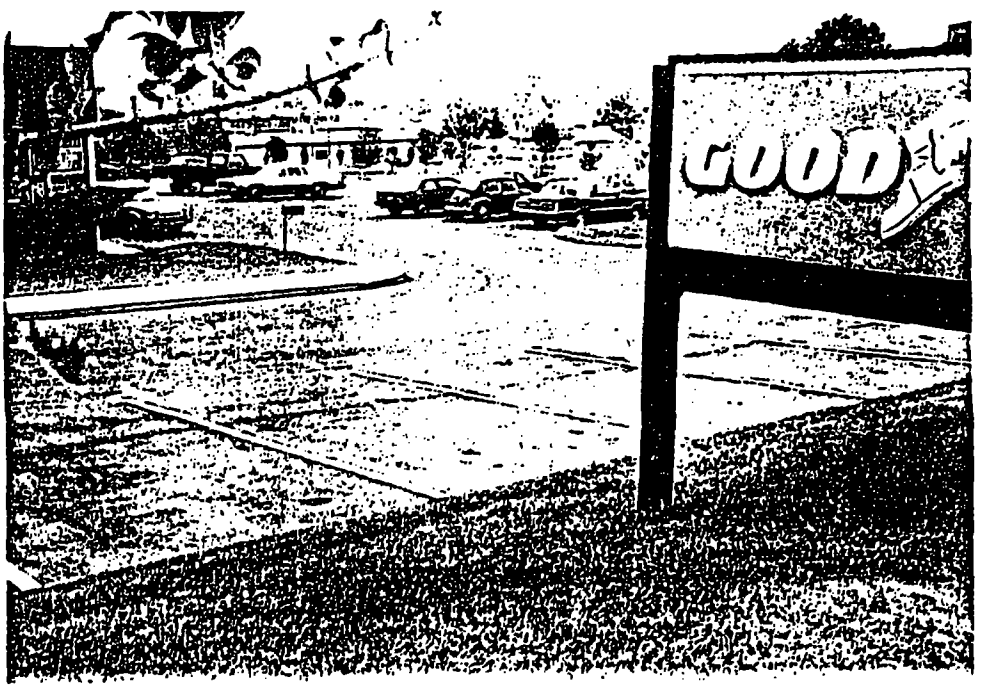
We provide continuing education programs to constantly enhance our professional skills. And whenever possible, we promote from within.

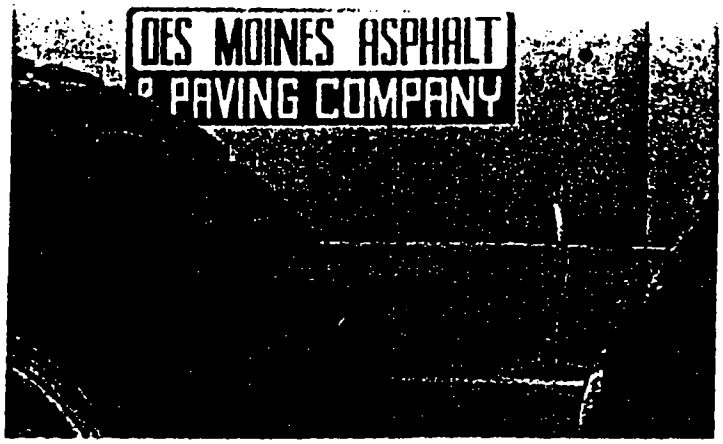
In the home office, our Customer Support Staff provides fast, courteous response to every client question or concern. Our Engineering Department works to develop construction and material specifications to ensure long-lasting, superior quality performance. And our computerized accounting system ensures timely, accurate detailing of every budgeted expense.






VALLEY
NATIONAL
BANK


GOODY



In recent years, we've enjoyed the opportunity to work with a number of satisfied clients, including:

Holiday Inns, Incorporated

Iowa Department of Transportation

Chicago & Northwestern Railroad

Corps of Engineers, Rock Island

Calumet Construction Company

Martin Marietta Corporation

Pioneer Hi-Bred International

Meredith/Burda Corporation

General Growth Properties

Iowa Methodist Medical Center

Iowa Lutheran Hospital

Des Moines General Hospital

Des Moines Independent School Systems

K.V. International

Norwest Banks

Valley National Banks

Greyhound

Polk County Engineers

Bankers Trust

City of Des Moines

Safeway Stores

Sundstrand Corporation

Church's Fried Chicken

Midland Financial

Mid-American Development

American Republic Insurance Company

Iowa Realty Company

Garst Seeds

Noddle Development Company

Iowa State University

American Federal Savings

Burger King Corporation

Des Moines Area Community College

Swift Independent Packing Company

John Deere Manufacturing Company

Drake University

Goodyear

Firestone

Neumann Bros.

Ringland Johnson Crowley

Weitz Corporation

Downing Construction Co.

King Bole

Walter Inc.

Des Moines International Airport

We invite you to consider the experience and capabilities of Des Moines Asphalt & Paving Company, for all your paving needs, no matter how large or small.

Our tradition of leadership can work for you.

Des Moines Asphalt & Paving Company

903 S.E. 22nd St.

Des Moines, IA 50317

515/262-8296

APPENDIX B

Dico, Inc.
Des Moines, Iowa

LOCATION		SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16
Analytical Parameter	Analytical Method																
Dalapon	8150	<0.80	<1.1	<2.1	<0.79	<0.76	<0.89	<0.88	<0.68	<0.78	<1.2	<1.4	<2.2	<0.68	<1.9	<0.66	<0.66
Dicamba	8150	<0.03	<0.05	<0.04	<0.03	<0.03	<0.04	<0.035	<0.027	<0.031	<0.048	<0.054	<0.09	<0.03	<0.08	<0.03	<0.03
MCPA(4-Chloro-o-tolyloxyacetic acid)	8150	<31.0	<45.0	<84.0	<32.0	<30.0	<36.0	<35.0	<27.0	<31.0	<48.0	<54.0	<87.0	<27.0	<77.0	<26.0	<27.0
MCPP(Mecoprop)	8150	<31.0	<45.0	<84.0	<32.0	<30.0	<36.0	<35.0	<27.0	<31.0	<48.0	<54.0	<87.0	<27.0	<77.0	<26.0	<27.0
Dichloroprop	8150	<0.31	<0.45	<0.84	<0.32	<0.30	<0.36	<0.35	<0.27	<0.31	<0.48	<0.54	<0.87	<0.27	<0.77	<0.26	<0.27
2,4-D	8150	<0.31	<0.45	<0.84	<0.32	<0.30	<0.36	<0.35	<0.27	<0.31	<0.48	<0.54	<0.87	<0.27	<0.77	<0.26	<0.27
2,4,5-TP(Silvex)	8150	<0.03	<0.05	120	<0.03	<0.03	<0.04	<0.035	<0.027	<0.031	<0.048	<0.054	<0.09	<0.03	<0.08	<0.03	<0.03
2,4,5-T	8150	<0.03	<0.05	<0.08	<0.03	<0.03	<0.04	<0.035	<0.027	<0.031	<0.048	<0.054	<0.09	<0.03	<0.08	<0.03	<0.03
Dinoseb	8150	<0.15	<0.22	<0.42	<0.16	<0.15	<0.18	<0.18	<0.14	<0.16	<0.24	<0.27	<0.43	<0.14	<0.38	<0.13	<0.13
2,4-DB	8150	<0.31	<0.45	<0.84	<0.32	<0.30	<0.36	<0.35	<0.27	<0.31	<0.48	<0.54	<0.87	<0.27	<0.77	<0.26	<0.27

LOCATION		SB-17	SB-18	SB-19	SB-20	SB-21	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28	SB-29	SB-30	SB-31	SB-32
Analytical Parameter	Analytical Method																
Dalapon	8150	<0.77	<0.64	<0.78	<2.9	<2.9	<1.2	<0.85	<0.61	<0.86	<0.70	<0.66	<0.65	<3.1	<2.9	<0.57	<2.6
Dicamba	8150	<0.031	<0.026	<0.03	<0.12	<0.12	<0.05	<0.03	<0.02	<0.03	<0.03	<0.03	<0.03	<0.12	<0.11	<0.02	<0.11
MCPA(4-Chloro-o-tolyloxyacetic acid)	8150	<31.0	<26.0	<31.0	<120.0	<120.0	<47.0	<34.0	<24.0	<34.0	<28.0	<28.0	<37.0	<120.0	<110.0	<23.0	<110.0
MCPP(Mecoprop)	8150	<31.0	<26.0	<31.0	<120.0	<120.0	<47.0	<34.0	<24.0	<34.0	<28.0	28.0	47.0	<120.0	<110.0	<34.0	<110.0
Dichloroprop	8150	<0.31	<0.26	<0.31	<1.2	<1.2	<0.47	<0.34	<0.24	<0.34	0.28	<0.28	<0.37	<1.2	<1.1	<0.23	<1.1
2,4-D	8150	<0.31	<0.26	<0.31	<1.2	<1.2	<0.47	<0.34	<0.24	<0.34	<0.28	<0.28	<0.37	<1.2	<1.1	<0.23	<1.1
2,4,5-TP(Silvex)	8150	<0.031	<0.026	<0.03	<0.12	<0.12	<0.05	<0.03	<0.02	<0.03	<0.03	<0.03	<0.03	<0.12	<0.12	<0.02	<0.11
2,4,5-T	8150	<0.031	<0.026	<0.03	0.48	0.43	<0.05	<0.03	<0.02	<0.03	<0.03	<0.03	<0.03	<0.12	<0.12	<0.02	<0.11
Dinoseb	8150	<0.15	<0.13	<0.16	<0.58	<0.59	<0.23	<0.17	<0.12	<0.17	<0.14	<0.13	<0.14	<0.62	<0.57	<0.11	<0.53
2,4-DB	8150	<0.31	<0.26	<0.31	<1.2	<1.2	<0.47	<0.34	<0.24	<0.34	<0.28	0.28	<0.37	<1.2	<1.1	<0.23	<1.1

DICOT01

Surface Soil Analytical Results Table 1 (continued)
Dico, Inc.
Des Moines, Iowa

LOCATION		SB-33	SB-34	SB-35	DUP1	DUP2	EB1	EB2
Analytical Parameter	Analytical Method							
Dalapon	8150	<3.7	<3.2	<0.64	<0.88	<0.79	<0.026	<0.025
Dicamba	8150	<0.15	<0.13	<0.03	<0.04	<0.03	<0.001	<0.001
MCPA(4-Chloro-o-tolyloxyacetic acid)	8150	<150.0	<130.0	<26.0	<35.0	<32.0	<1.0	<1.0
MCPP(Mecoprop)	8150	<150.0	<130.0	<26.0	<35.0	<32.0	<1.0	<1.0
Dichloroprop	8150	<1.5	<1.3	<0.26	<0.35	<0.32	<0.01	<0.01
2,4-D	8150	<1.5	<1.3	<0.26	<0.35	<0.32	<0.01	<0.01
2,4,5-TP(Silvex)	8150	<0.15	<0.13	<0.03	<0.04	<0.03	<0.001	<0.001
2,4,5-T	8150	<0.15	<0.13	<0.03	<0.20	<0.03	<0.001	<0.001
Dinoseb	8150	<0.74	<0.65	<0.13	<0.18	<0.16	<0.005	<0.005
2,4-DB	8150	<1.5	<1.3	<0.26	<0.35	<0.32	<0.01	<0.01

Notes:

1. All concentrations shown in parts per billion (ug/kg).
2. Samples collected on January 27, 1994.
3. Samples analyzed by OBG Laboratories of Syracuse, New York.
4. "<" denotes less than the indicated detection limit of test.

DICOTBIA

Surface Soil Analytical Results
Dico, Inc.
Des Moines, Iowa

Table 2

LOCATION		SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14
Analytical Parameter	Analytical Method														
alpha-BHC	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
beta-BHC	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
delta-BHC	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
gamma-BHC(Lindane)	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
Heptachlor	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
Aldrin	CLPSOWOM01.8	310J	160J	1200J	11.0J	200.0	52.0JP	1.5J	0.57JP	32.0JP	14.0JP	3600.0	190	0.86JP	4.5J
Heptachlor epoxide	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	0.60JP	1.1JP
Endosulfan I	CLPSOWOM01.8	<1300	<1900	<2100	<26.0	<130	<150.0	<2.9	<2.2	<520	<79.0	<2200	<72.0	<2.2	<6.4
Dieldrin	CLPSOWOM01.8	19000	26000	16000	160.0	2100	2100	35.0	3.1J	3100	1400.0	59000	540	3.5JP	180
4,4-DDE	CLPSOWOM01.8	<2600	<3800	<4200	<53.0	<250.0	<300	5.3J	<4.5	200J	110J	<4500	<140.0	<4.5	<13.0
Endrin	CLPSOWOM01.8	<2600	<3800	<4200	<53.0	<250.0	<300	<5.8	<4.5	<1000	<160	<4500	<140.0	<4.5	3.1J
Endosulfan II	CLPSOWOM01.8	<2600	<3800	<4200	<53.0	<250.0	<300	<5.8	<4.5	<1000	<160	<4500	<140.0	<4.5	<13.0
4,4-DDD	CLPSOWOM01.8	160JP	240JP	760JP	6.8JP	87.0JP	180JP	5.7JP	1.3JP	330JP	250P	480JP	150	1.4JP	14.0P
Endosulfan sulfate	CLPSOWOM01.8	<2600	<3800	<4200	<53.0	<250.0	<300	1.8JP	1.7JP	<1000	<160	<4500	<140.0	4.7P	7.4JP
4,4-DDT	CLPSOWOM01.8	460J	<3800	<4200	21.0JP	<250.0	150J	5.9P	<4.5	670J	280	280JP	40.0JP	<4.5	33.0P
Methoxychlor	CLPSOWOM01.8	<13000	<19000	<21000	<260.0	<1300	<1500.0	<29.0	<22.0	<5200	<790	<22000	<720	<22.0	<64.0
Endrin ketone	CLPSOWOM01.8	<2600	<3800	1600JP	20.0JP	86.0JP	190J	4.8JP	<4.9P	210JP	140J	910J	<140.0	<4.5	<13.0
Endrin aldehyde	CLPSOWOM01.8	<2600	<3800	<4200	<53.0	<250.0	<300	<5.8	<4.5	<1000	<160	<4500	<140.0	<4.5	<13.0
alpha-Chlordane	CLPSOWOM01.8	870J	2000P	8500	40.0	810.0	1800P	7.4P	0.91JP	560	280	3400	540	0.82JP	12.0P
gamma-Chlordane	CLPSOWOM01.8	700JP	1900P	7200P	42.0P	1000P	1800P	<2.9	<2.2	460JP	200	3200P	510P	2.0J	18.0
Toxaphene	CLPSOWOM01.8	<130000	<190000	<210000	<2600.0	<13000	<15000	<290	<220	<52000	<7900	<220000	<7200	<220	<640
Aroclor-1016	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130
Aroclor-1221	CLPSOWOM01.8	<51000	<76000	<84000	<1000.0	<5000	<6000	<120	<90.0	<21000	<3200	<90000	<2900	<90.0	<260
Aroclor-1232	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130
Aroclor-1242	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130
Aroclor-1248	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130
Aroclor-1254	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130
Aroclor-1260	CLPSOWOM01.8	<26000	<38000	<42000	<530.0	<2500	<3000	<58.0	<45.0	<10000	<1600	<45000	<1400	<45.0	<130

Table 2(continued)

LOCATION		SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28
Analytical Parameter	Analytical Method														
alpha-BHC	CLPSOWOM01.8	<2.2	<2.2	<26.0	<2.1	<2.6	<240	<240	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
beta-BHC	CLPSOWOM01.8	<2.2	0.47JP	<26.0	<2.1	<2.6	<240	<240	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
delta-BHC	CLPSOWOM01.8	<2.2	<2.2	<26.0	<2.1	<2.6	<240	160JP	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
gamma-BHC(Lindane)	CLPSOWOM01.8	<2.2	<2.2	<26.0	1.0JP	3.2P	<240	<240	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
Heptachlor	CLPSOWOM01.8	<2.2	<2.2	5.7JP	<2.1	0.71JP	710P	800	<78.0	<1400	38.0J	<140	<23.0	<22.0	<2200
Aldrin	CLPSOWOM01.8	0.68JP	0.94J	28.0	1.9J	4.4P	510P	510	19.0J	460J	94.0J	65.0J	22.0J	34.0	2700
Heptachlor epoxide	CLPSOWOM01.8	<2.2	<2.2	9.4JP	<2.1	<2.6	<240	<240	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
Endosulfan I	CLPSOWOM01.8	<2.2	<2.2	<26.0	<2.1	<2.6	<240	<240	<78.0	<1400	<200	<140	<23.0	<22.0	<2200
Dieldrin	CLPSOWOM01.8	2.8JP	3.0JP	140P	17.0	28.0	740P	1200P	560	17000	1400	2300	280	450	8100
4,4-DDE	CLPSOWOM01.8	<4.4	<4.4	<51.0	<4.3	<5.2	<480	<490	<160	<2800	<410	<280	<47.0	<44.0	<4300
Endrin	CLPSOWOM01.8	<4.4	<4.4	<51.0	<4.3	<5.2	<480	<490	<160	<2800	<410	<280	<47.0	<44.0	<4300
Endosulfan II	CLPSOWOM01.8	<4.4	<4.4	66.0P	<4.3	<5.2	<480	<490	<160	140JP	<410	<280	<47.0	<44.0	220JP
4,4-DDD	CLPSOWOM01.8	3.5JP	2.4J	<51.0	2.6JP	8.8P	<480	190JP	25.0JP	<2800	160JP	69.0JP	10.0JP	11.0JP	<4300
Endosulfan sulfate	CLPSOWOM01.8	3.4JP	4.5P	<51.0	4.6	21.0P	640	320JP	<160	470JP	<410	<280	<47.0	<44.0	480
4,4-DDT	CLPSOWOM01.8	2.7JP	4.6	88.0P	<4.3	17.0P	660	220JP	31.0JP	<14000	<410	170JP	18.0JP	<44.0	<22000
Methoxychlor	CLPSOWOM01.8	<22.0	22.0	<260	<21.0	<26.0	2000J	1100JP	<780	<2800	<2000	<1400	<230	<220.0	620JP
Endrin ketone	CLPSOWOM01.8	<4.4	<4.4	<51.0	<4.3	<5.2	<480	2600	97.0JP	<2800	<410	93.0JP	66.0P	<44.0	<4300
Endrin aldehyde	CLPSOWOM01.8	<4.4	<4.4	<51.0	<4.3	<5.2	<480	<490	<160	1100J	<410	<280	<47.0	<44.0	2000J
alpha-Chlordane	CLPSOWOM01.8	1.2JP	1.8JP	19JP	2.5P	8.4P	2700P	3200	110P	850J	2200	580	46.0P	38.0P	1900JP
gamma-Chlordane	CLPSOWOM01.8	1.0J	1.9JP	18JP	2.2	8.9P	3900	4100	98.0	<140000	2100P	440P	41.0	40.0	<220000
Toxaphene	CLPSOWOM01.8	<220	<220	<2600.0	<210	<260	<24000	<24000	<7800	<28000	<20000	14000	<2300	<2200	<43000
Aroclor-1016	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<56000	<4100	<2800	<470	<440	<86000
Aroclor-1221	CLPSOWOM01.8	<88.0	<89.0	<1000.0	<85.0	<100.0	<9700	<9800	<3100	<28000	<8100	<5600	<940	<880	<43000
Aroclor-1232	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<28000	<4100	<2800	<470	<440	<43000
Aroclor-1242	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<28000	<4100	<2800	<470	<440	<43000
Aroclor-1248	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<28000	<4100	<2800	<470	<440	<43000
Aroclor-1254	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<28000	<4100	<2800	<470	<440	<43000
Aroclor-1260	CLPSOWOM01.8	<44.0	<44.0	<510.0	<43.0	<52.0	<4800	<4900	<1600	<28000	<4100	<2800	<470	<440	<43000

Table 2(continued)

LOCATION		SB-29	SB-30	SB-31	SB-32	SB-33	SB-34	SB-35	DUP1	DUP2	EB1	EB2
Analytical Parameter	Analytical Method											
alpha-BHC	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
beta-BHC	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
delta-BHC	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
gamma-BHC(Lindane)	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
Heptachlor	CLPSOWOM01.8	<2600	<2400	26.0JP	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
Aldrin	CLPSOWOM01.8	1100J	10000	41.0JP	47.0JP	300JP	280JP	1100J	2.0JP	49.0JP	<0.05	<0.05
Heptachlor epoxide	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
Endosulfan I	CLPSOWOM01.8	<2600	<2400	<96.0	<110	<3100	<2700	<2100	<29.0	<130	<0.05	<0.05
Dieldrin	CLPSOWOM01.8	15000	7900	550	1200	12000	10000	14000	100	4000P	0.01JP	0.01JP
4,4-DDE	CLPSOWOM01.8	<5100	<4800	<190	<220	<6200	<5400	<4300	15.0J	460	<0.10	<0.10
Endrin	CLPSOWOM01.8	<5100	<4800	<190	<220	<6200	<5400	<4300	<58.0	<260	<0.10	<0.10
Endosulfan II	CLPSOWOM01.8	<5100	<4800	<190	<220	<6200	<5400	<4300	<58.0	<260	<0.10	<0.10
4,4-DDD	CLPSOWOM01.8	280JP	<4800	39.0JP	<220	1300JP	590JP	120JP	11.0JP	580P	<0.10	<0.10
Endosulfan sulfate	CLPSOWOM01.8	<5100	<4800	<190	110JP	<6200	<5400	<4300	3.9JP	<260	<0.10	<0.10
4,4-DDT	CLPSOWOM01.8	<5100	<4800	<190	<220	<6200	<5400	<4300	14.0J	1300	<0.10	<0.10
Methoxychlor	CLPSOWOM01.8	<26000	<24000	<960	<1100	<31000	<27000	<21000	<290	<1300	<0.50	<0.50
Endrin ketone	CLPSOWOM01.8	<5100	<4800	69.0JP	<220	730JP	<5400	<4300	<58.0	330	<0.10	<0.10
Endrin aldehyde	CLPSOWOM01.8	<5100	<4800	<190	<220	<6200	<5400	<4300	<58.0	<260	<0.10	<0.10
alpha-Chlordane	CLPSOWOM01.8	3000	1000J	400	460	14000	7300	2000J	20.0JP	800P	<0.05	<0.05
gamma-Chlordane	CLPSOWOM01.8	3600P	1100JP	380P	390	13000P	6100	1800JP	<29.0	650	<0.05	<0.05
Toxaphene	CLPSOWOM01.8	<260000	<240000	<9600	<11000	<310000	<270000	<210000	<2900	<13000	<5.0	<5.0
Aroclor-1016	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0
Aroclor-1221	CLPSOWOM01.8	<100000	<95000	<3800	<4400	<120000	<110000	<85000	<1200.0	<5300	<2.0	<2.0
Aroclor-1232	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0
Aroclor-1242	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0
Aroclor-1248	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0
Aroclor-1254	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0
Aroclor-1260	CLPSOWOM01.8	<51000	<48000	<1900	<2200	<62000	<54000	<43000	<580.0	<2600	<1.0	<1.0

Notes:

1. All cocentrations are shown in parts per billion (ug/kg).
2. Samples collected on January 27, 1994.
3. Samples analyzed by OBG Laboratories, Inc. of Syracuse, New York.
4. "<" denotes less than the detection limit of test.
5. "DUP" denotes field duplicate.
6. "EB" denotes equipment rinseate blank.
7. "J" denotes estimated value.
8. "P" denotes there is a greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported.

Surface Soil Analytical Results
Dico, Inc.
Des Moines, Iowa

Table 3

LOCATION		SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7A	SB-8	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14
Analytical Parameter	Analytical Method														
Dioxins 2,3,7,8-TCDD	8280	<0.068	0.055	<0.15	<0.056	<0.20	0.07	<0.084	<0.024	<0.21	<0.13	0.14	<0.10	<0.022	<0.020

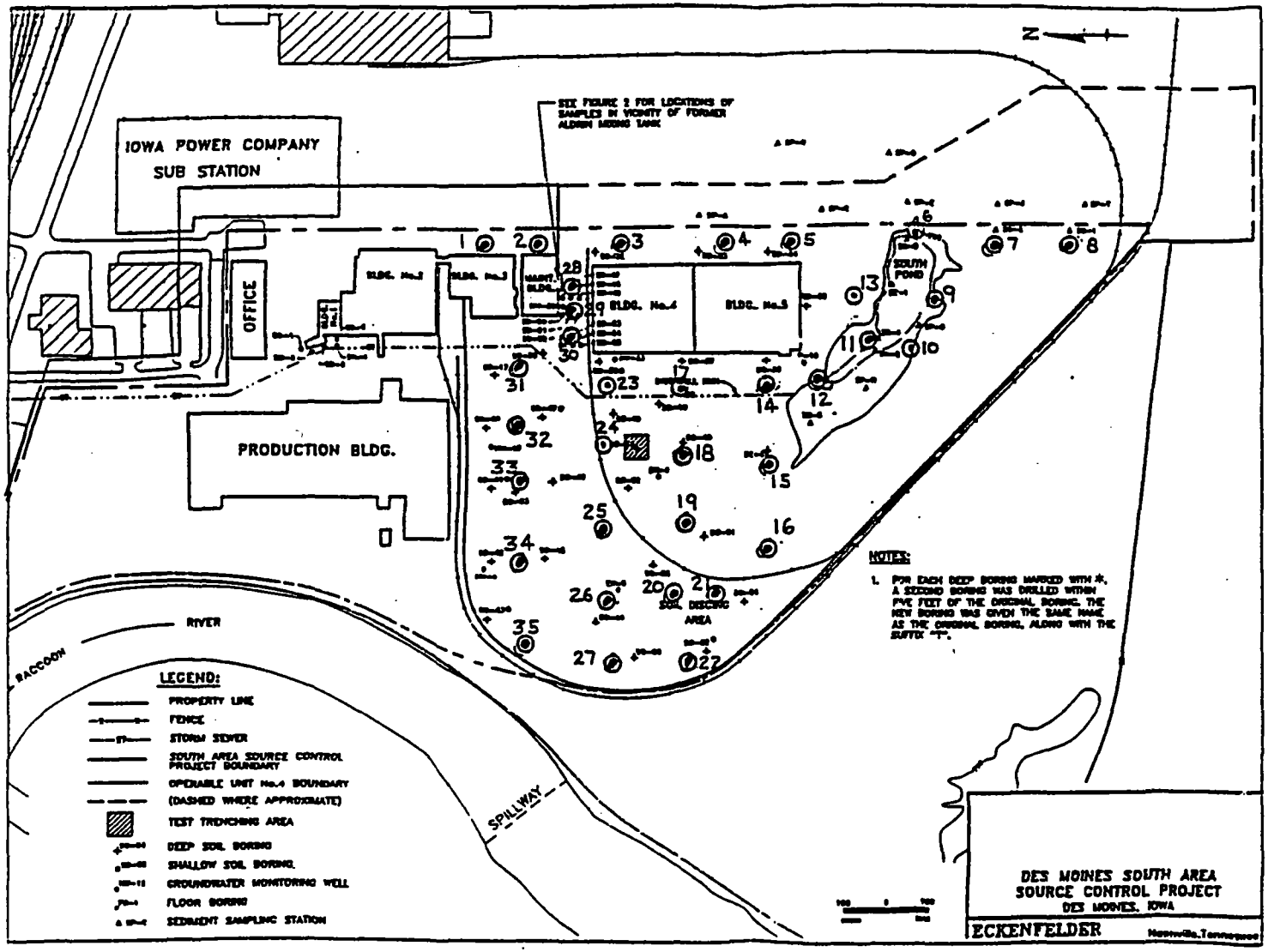
LOCATION		SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28
Analytical Parameter	Analytical Method														
Dioxins 2,3,7,8-TCDD	8280	<0.035	<0.023	<0.035	<0.025	<0.024	0.77	0.88	<0.038	<0.043	<0.090	<0.041	<0.064	<0.030	<0.064

LOCATION		SB-29	SB-30	SB-31	SB-32	SB-33	SB-34A	SB-35A	DUP1	DUP2	EB1	EB2
Analytical Parameter	Analytical Method											
Dioxins 2,3,7,8-TCDD	8280	<0.045	<0.067	<0.043	<0.098	0.093	<0.12	<0.042	<0.039	<0.26	<0.38	<0.36

Notes:

1. All concentrations are shown in parts per billion (ug/kg).
2. Samples collected on January 27, 1994.
3. Samples analyzed by Enseco of West Sacramento, California.
4. "<" denotes less than the indicated detection limit of test.
5. "DUP" denotes field duplicate.
6. "EB" denotes equipment rinesate blank.

FIGURE 2



REVISED BY O'BRIEN & GERE ENGINEERS, INC.
FOR JANUARY 21, 1994 WORK PLAN

LEGEND

SUBSURFACE SOIL SAMPLE LOCATION

DICO, INC.
DES MOINES TCE
DES MOINES, I(

OU-4
SHALLOW
SUBSURFACE S
SAMPLING LOCATI

FILE NO. 5881-001-00

O'BRIEN & GERE ENGINEERS, INC.

APPENDIX C

ASPHALT CAP
OPERATION AND MAINTENANCE PLAN

FOR

DICO, INC.
DES MOINES, IOWA

ASPHALT CAP
OPERATION AND MAINTENANCE PLAN
DICO, INC.
DES MOINES, IOWA

TABLE OF CONTENTS

OPERATION AND MAINTENANCE PLAN
DICO, INC.
DES MOINES, IOWA

1.0 INTRODUCTION

Titan Wheel International, Inc./Dyneer Corporation Environmental Engineering Department has prepared this Operation and Maintenance (O&M) Plan in accordance with the United States Environmental Protection Agency (USEPA) administrative order issued for the DICO facility in Des Moines, Iowa. This O&M Plan will set forth the actions necessary to ensure the protectiveness and integrity of the removal actions performed.

2.0 BACKGROUND

The DICO facility is part of the larger "Des Moines TCE (Trichloroethylene) Site" as defined by the USEPA. This site was placed on the USEPA's National Priorities List (NPL) in 1983 as a "Super Fund" site which includes a portion of the Des Moines Water Works (DMWW) property, the industrial area north of the Raccoon River, the Tuttle Street landfill to the east, and the Frank DePuydt Woods to the south. The Des Moines TCE Site was divided into Four Operable Units (OU). OU1 includes groundwater underlying the site that is contaminated with TCE. OU2, also known as the South Area Source Control (SASC), covers sections of the DICO property and a portion of the Frank DePuydt Woods. A northern plume of contaminated groundwater is identified as OU3. OU4 includes Buildings No. 1 through No. 5 and the Maintenance Building, soil and sediment surrounding the former Aldrin tank and South Pond areas, and the soil pile disking operations. The relevant sections of OU4 are displayed on Figure 1.

In 1975, volatile organic compounds (VOCs) were discovered in the DMWW groundwater supply consisting primarily of TCE and, to a lesser extent, 1,2-Dichloroethene. As a result of these findings, numerous groundwater investigations have been conducted to determine the amount and extent of VOC presence within the groundwater. These investigations consisted of monitor well installations, groundwater sampling, and soil sampling. The resulting data indicated that significant quantities of VOCS were present within the soil and groundwater of the DICO facility. In July, 1986 the USEPA issued a unilateral administrative order to DICO to install and operate a groundwater recovery system which was completed in December, 1987.

Through 1989 and 1990 a Remedial Investigation/Feasibility Study (RI/FS) was performed to evaluate the extent of soil contamination at the DICO facility. The investigation included shallow auger borings, deep soil borings, surface water sampling, sediment sampling, and groundwater sampling. The results of the RI/FS indicated soil contamination consisting primarily of VOCs with minimal levels of pesticide in certain locations. As a result of these findings an administrative order was issued by the USEPA to "abate an imminent and substantial endangerment to the public health, welfare, or the environment." The following paragraphs discuss the likely sources of contamination present at the DICO facility.

Based on site history and sampling results of the various investigations the following locations and activities can

be identified as potential sources of the VOCS:

Former truck loading area
Former solvent storage tanks/rail car unloading area
Fill area south of DICO production building
Former drum cleaning area
Former drum fill area

This locations are presented on Figure 1. The investigations also indicated a potential off-site source on the north side of the site. It is possible that through the above listed operations solvents were allowed to be released to the ground either through spills or mishandling. These releases of solvents would expose VOCs to the ground which, over many years, may have migrated into the soil surrounding the plant and also down to the underlying groundwater.

Buildings No. 1 through No. 5 and the Maintenance Building were the location of pesticide formulation and distribution operations from the mid 1950's through 1970, under the name of DiChem, Inc. Work performed under a contract with Shell Oil Company included heating Aldrin to a liquid form in a tank and then sprayed onto fertilizer. The product was then marketed by Shell. Other similar work was performed under contracts with Chevron Chemicals Company, Monsanto, and American Oil Products. This included preparing, packaging, and storing herbicides and pesticides which contained Chlordane and Heptachlor. During these operations the materials were owned solely by the company for which the formulation activities were performed. Furthermore, the mentioned companies provided instructions and supervision of the formulation operations, equipment, processes, and other related procedures. These operations ceased by DiChem in the early 1970's. These activities are a potential source for the low levels of pesticide contamination in the soil since spills and material carried by the wind could have been exposed to the surrounding grounds. Over the years the material may have migrated into the ground through infiltrating surface water.

To comply with the administrative order issued by the USEPA, the contaminated soils on the DICO property were covered with an asphalt cap. The asphalt serves as a barrier to prevent surface water from infiltrating the ground and carrying contaminants into the underlying groundwater and also to prevent exposure of persons at the DICO facility to potentially contaminated material from the surrounding grounds. The asphalted surface is composed of two different thickness which can be seen on Figure 2. The areas paved with six inches of asphalt are designed to handle normal pedestrian and vehicular traffic associated with plant operations. All driveways, throughways, and parking areas are composed of six inches of asphalt. The areas paved with only three inches of asphalt are in place to only protect the underlying ground and not to serve as driveway or parking area. Vehicular traffic in these areas is prohibited and pedestrian traffic must be cleared by the plant engineer according to the need for access.

3.0 OBJECTIVE

In order to maintain long term effectiveness of the encapsulated surfaces, this O&M Plan will set forth practices to ensure all efforts are made to prevent damage to the asphalt cap and, in the case of damage, institute repairs in a safe and effective manner.

4.0 OPERATION AND MAINTENANCE PLAN

This O&M Plan and associated records will be available on-site at the DICO facility at all times for inspection by representatives of the USEPA, the Iowa Department of Natural Resources (IDNR), and any other local or federal agency that my have the authority to review this information. Plant management will be familiar with the contents and requirements of this plan, while the Plant Engineer will be responsible for the institution and adherence to the requirements and guidelines of this document.

4.1 EMPLOYEE AWARENESS

DICO personnel whose positions involve the use of vehicles on-site (i.e. towmotor and truck drivers) will be informed of the purpose and importance of avoiding damage to the asphalt surface. All personnel will be informed that vehicle traffic and parking is restricted to the designated areas. They will be allowed to review this document, if they desire, to be aware of the potentially hazardous substances that may exist beneath the surface coatings. A statement explaining the situation and a sign-off log is provided in Appendix A. The statement will be read by any DICO employee who drives tow motors and/ or trucks, and they will have the option to review this document. The log with appropriate signatures will be kept on file at DICO with other information relevant to this Plan, as detailed in Section 4.0.

To supplement the verbal instructions provided to employees, signs will be posted along the boundaries of nontraffic asphalt. These signs will state that the indicated areas are prohibited to vehicle traffic.

4.2 PREVENTIVE ACTIONS

To physically minimize potential damage, infiltration of surface water to the surrounding soils, and possible exposure to contaminated soil, several measures have been taken. First, a chain fence has been constructed to prevent vehicle access to the nontraffic areas and thus limit the potential damage to the asphalt surface. The fencing is reinforced by posted signs stating that vehicular traffic is prohibited.

To prevent surface waters from infiltrating the ground and possibly the underlying groundwater, the asphalt surface covers all areas of concern expressed in the remediation investigations. This also greatly limits the possibility of exposure of personnel to the underlying surface and potentially hazardous substances. Also, the cap extends to the exterior of all surface structures or, for the fenced off areas for the extraction wells, a curb is provided to deter the flow of surface water.

Another preventive measure is minimizing ice and snow removal during winter weather. Only the traffic pavement areas will have snow and ice removed when necessary, the nontraffic pavement will not be scraped or plowed at all. This will minimize any damage normally associated with these activities. Snow and ice removal is performed by DICO personnel and when this is required the operator will be instructed to take necessary precautions to prevent damage. Furthermore, application of ice melting materials will be kept as low as possible.

4.3 MONTHLY INSPECTIONS

A monthly inspection, performed by the Plant Engineer, will be conducted to ensure the integrity of the asphalt cap has not been compromised. These monthly inspections will primarily focus on likely areas of potential damage such as main driveways for trucks, truck trailer storage area, equipment storage areas, and truck loading/unloading areas. A monthly inspection checklist is provided in Appendix C that details the required information for the monthly report. These records will be kept with associated information as described in Section 4.0. In the case damage is discovered and requires repairs, action will be taken as described in Section 5.

4.4 ANNUAL INSPECTIONS

Annual inspections will be conducted by the Plant Engineer. These inspections will cover the requirements outlined in the monthly inspections plus efforts to inspect as much of the asphalt cap as possible. These efforts will include inspecting curbing, pavement endings, building/pavement connections, and other aspects of the asphalt integrity. Though all efforts will be made for inspection activities, extreme efforts that may interrupt plant operations may be avoided.

The inspection will be performed in the spring of each year so that damage that may occur from freeze/thaw cycles during the winter will be discovered. These annual reports will include the checklist provided in Appendix C and an attached report describing methods and the results of inspecting the more inaccessible areas previously described. The report and other pertinent information will be forwarded to USEPA Region VII at the following address:

USEPA - REGION VII
WASTE MANAGEMENT DIVISION - SUPERFUND BRANCH
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

The report and other information will be kept on file at DICO as described in Section 4.0. In the case damage is discovered and repairs are required, the actions taken, as presented in Section 5.0, will also be forwarded to the USEPA and kept on file.

5.0 DAMAGE REPAIR AND GUIDELINES

Through employee awareness, monthly inspections, and detailed annual inspections, any damage to the asphalt cap will quickly be discovered. Damage to the asphalt cap is considered any situation where the underlying ground is exposed and/or where surface water is capable of infiltrating the asphalt and coming into contact with the ground. In either of these events, repairs will be instituted as soon as possible.

If any damage occurs that is localized in a small area (i.e. pothole) repairs will involve patching the damaged area. All lose material from the damaged area will be removed. The repair activities will not involve going below the rock base underlying the asphalt to remove this material. Once all loose material is removed a patch of similar asphalt will be put in place. This may be performed by DICO personnel or an outside contractor. If the damage occurred in a traffic area, sufficient barriers will be put around the damage to prevent traffic over the

area until the patch is ready for use.

If damage occurs that involves a large section of the asphalt cap and patching is impractical the damaged section will be removed. The damaged asphalt and any other loose material will be removed to the level of the rock subbase of the asphalt. Heavy equipment, such as a front end loader may be used in the damage occurs in a traffic pavement area but if the damage is in a nontraffic area with a light layer of asphalt, all work will need to be performed by hand. A new section of asphalt, of similar or improved performance, will be applied over the damaged area and protective barriers will be put up to protect the area until ready for use. This work will most likely be performed by an outside contractor.

All these actions will be detailed in a report that will be filed at DICO and forwarded with the next submittal of an annual report. The repair report will include the following:

Date of discovery
Cause of damage (if known)
Date of repair
Method of repair (a patch or replacement of whole section)
Asphalt type and thickness (if different from original)
Diagram showing exact location of damage
Name and position of DICO personnel responsible for repair and report.

6.0 TEMPORARY REPAIRS AND PROCEDURES

Though sudden and significant damage to the asphalt cap is not likely, damage over time through ordinary use may happen. This may occur in the winter months when applying asphalt is not practical due to weather conditions. If damage occurs during warmer weather, repairs can be undertaken as soon as possible, but if the damage occurs in the winter temporary measures will have to be taken to prevent possible exposure of personnel to the underlying soil and/or surface water infiltrating the asphalt cap and entering the ground. These temporary measures may include barricading the damaged area off with horses and/or safety fences, covering the damaged area with plastic lining, or constructing temporary berms to redirect any surface water from the damaged area. These actions will serve until permanent repairs can be instituted in more suitable weather conditions.

FIGURE 1.0
OPERABLE UNIT BOUNDARIES

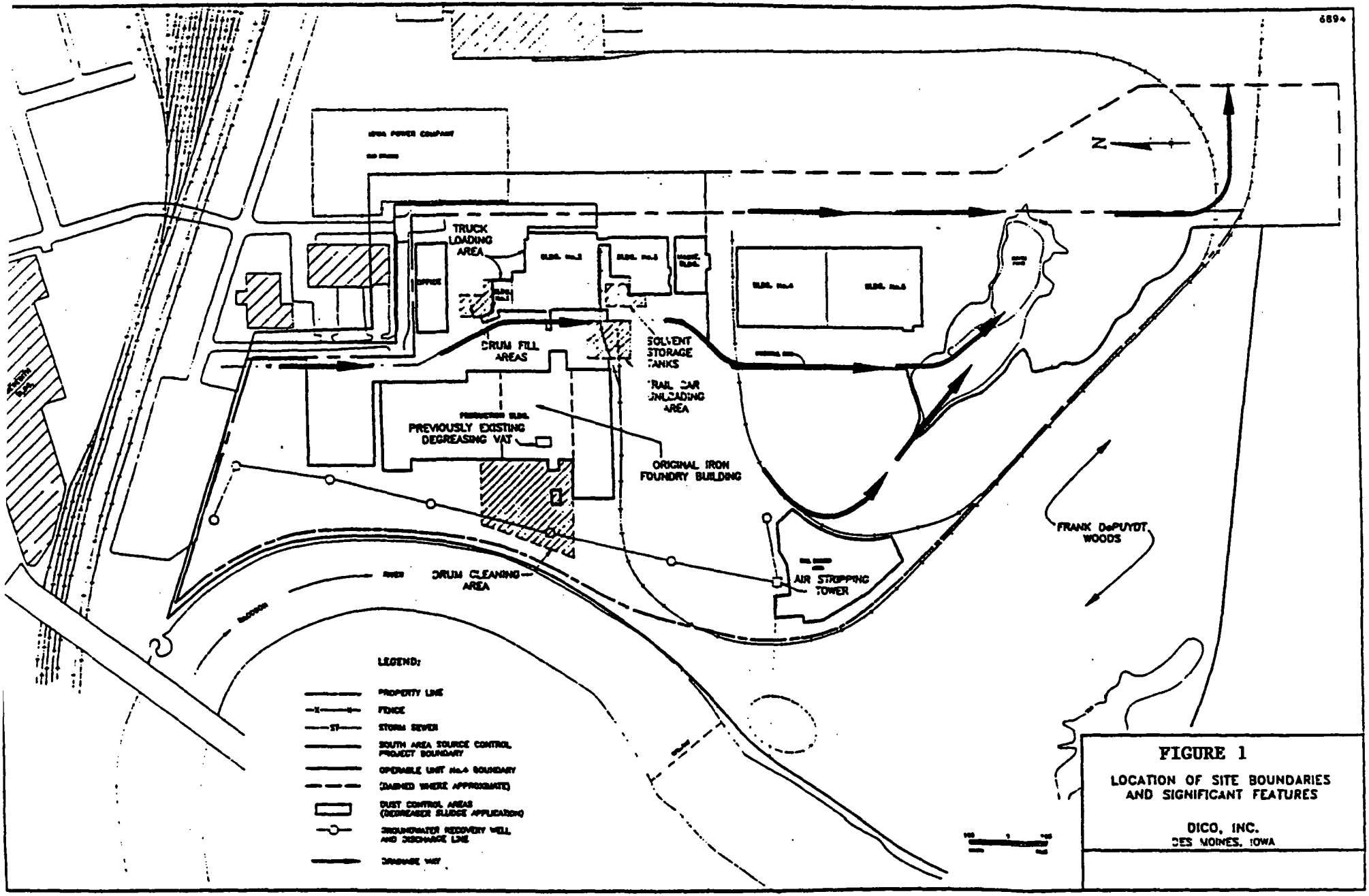


FIGURE 1

LOCATION OF SITE BOUNDARIES AND SIGNIFICANT FEATURES

DICO, INC.
DES MOINES, IOWA

FIGURE 2.0
PLANT LAYOUT

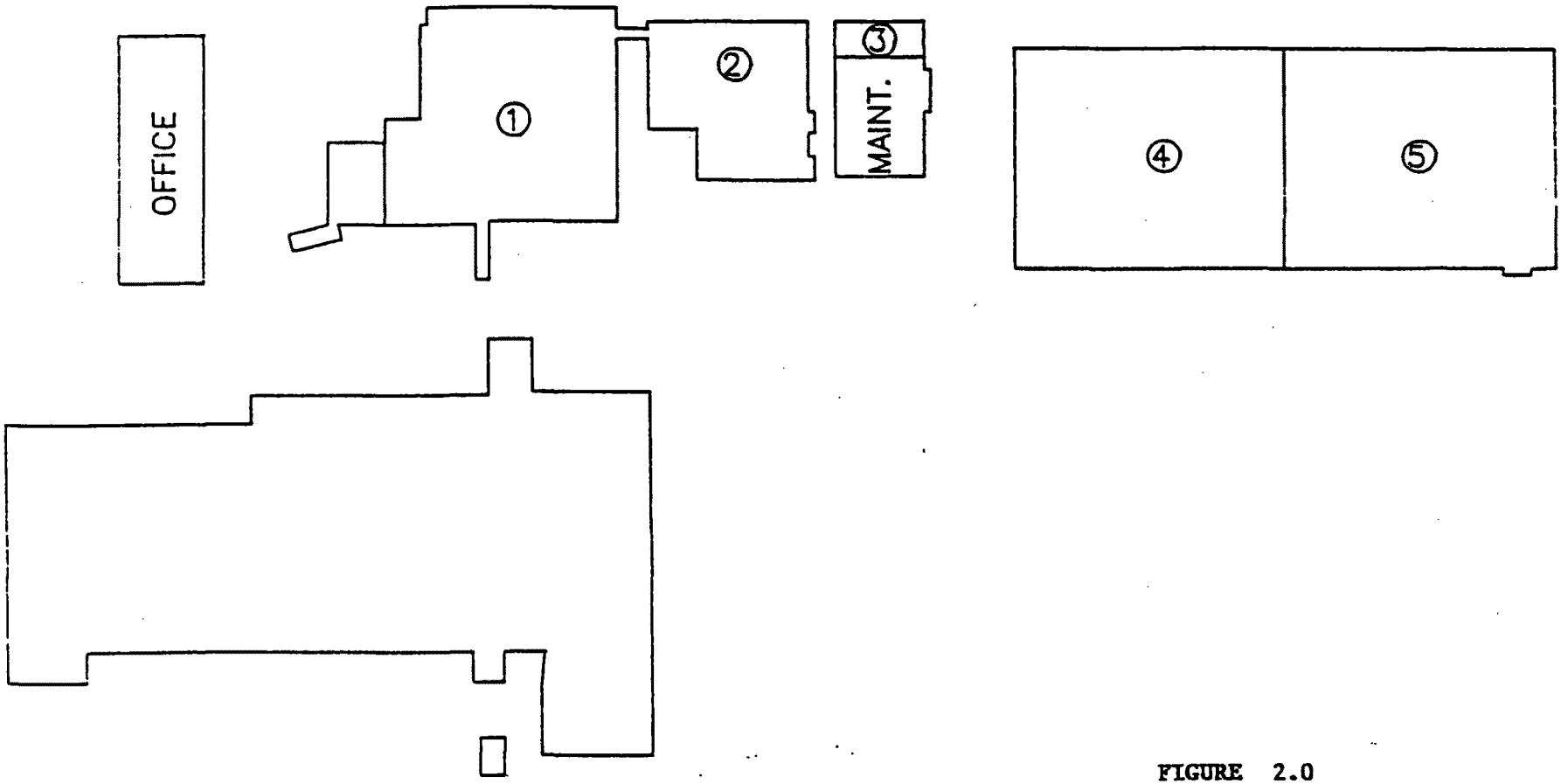


FIGURE 2.0
PLANT LAYOUT

APPENDIX A
EMPLOYEE AWARENESS LOG

EMPLOYEE AWARENESS LOG

DICO, INC. - DES MOINES, IOWA

The following statement is to be read by all DICO employees that will perform work that involves the operation of a towmotor or truck outside. The Operation & Maintenance Plan is available to anyone who wishes to review it. Their signature will represent consent to the following statement.

"I have been verbally informed and allowed the option of reviewing the Operation & Maintenance Plan for the asphalt cap. This information explains to me the importance of taking the proper precautions to prevent damaging the asphalt cap. I understand that if I cause damage to the asphalt cap I am to report this information immediately to the Plant Engineer or other responsible personnel."

DATE	EMPLOYEE NAME (PRINT)	EMPLOYEE SIGNATURE	SS NUMBER

APPENDIX B
MONTHLY INSPECTION REPORT

DMINSPE2.XLS

MONTHLY INSPECTION REPORT

DICO, INC. - DES MOINES, IOWA

TITLE OF INSPECTOR: _____

DATE: _____

AREA INSPECTED	DAMAGE PRESENT*	DESCRIPTION
DRIVEWAYS DOCK		
DOCK AREAS		
TRAILER PARKING		
EQUIPMENT STORAGE		

NOTE: * - ANSWER YES OR NO; IF DAMAGE PRESENT BRIEFLY DESCRIBE

APPENDIX C
ANNUAL INSPECTION REPORT

ANNUAL INSPECTION REPORT

DICO, INC. - DES MOINES, IOWA

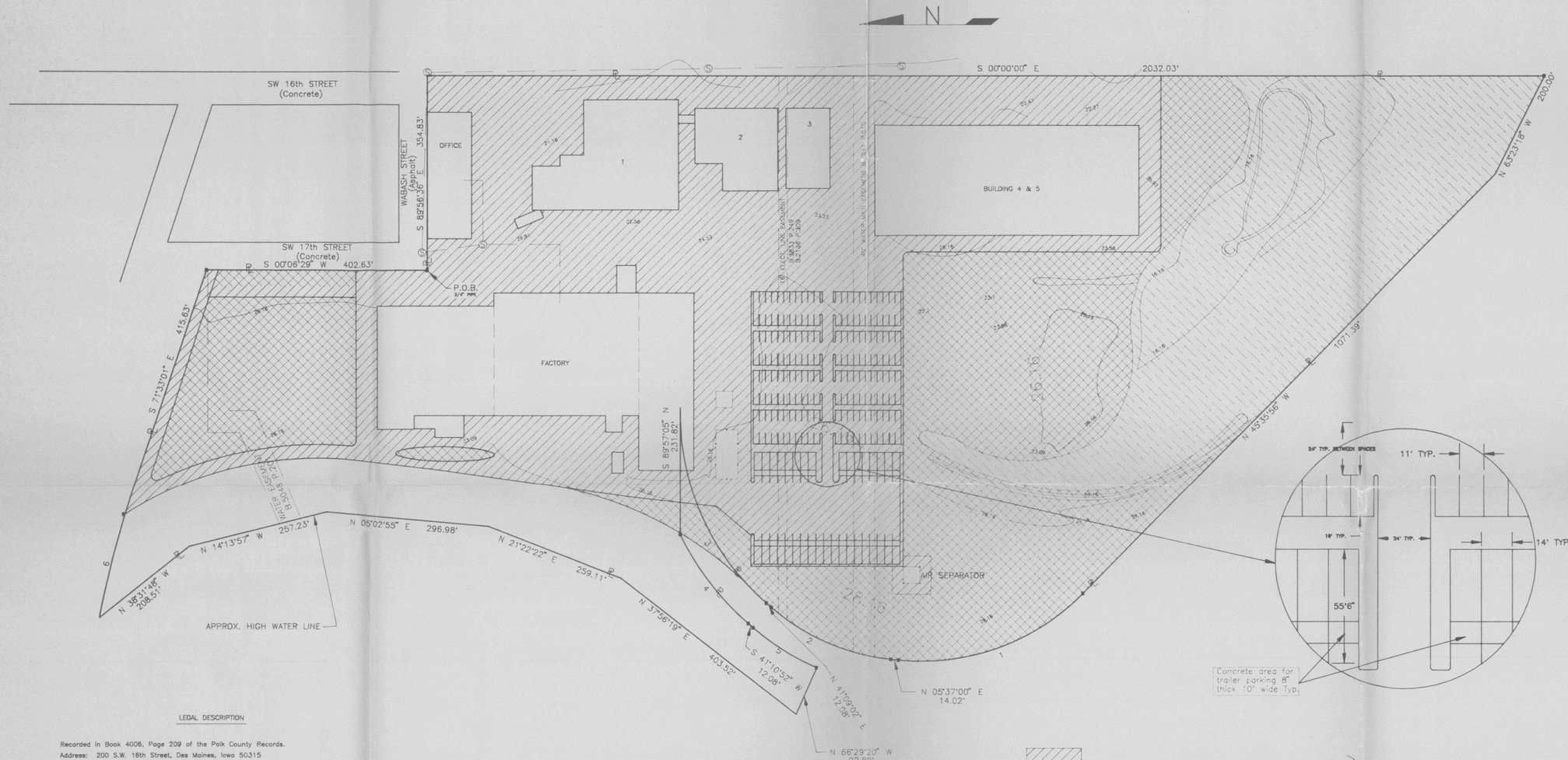
TITLE OF INSPECTOR: _____

DATE: _____

AREA INSPECTED	DAMAGE PRESENT*	DESCRIPTION
DRIVEWAYS DOCK		
DOCK AREAS		
TRAILER PARKING		
EQUIPMENT STORAGE		
CURBING		
NONTRAFFIC PAVEMENT		
PAVEMENT EDGES		

NOTE: * - ANSWER YES OR NO; IF DAMAGE PRESENT BRIEFLY DESCRIBE

APPENDIX D



LEGAL DESCRIPTION

Recorded in Book 4006, Page 209 of the Polk County Records.

Address: 200 S.W. 16th Street, Des Moines, Iowa 50315

Title Commitment Number: 91-12-0015

Dico Plat 1, except Lot "A", and except that part of Lot 1 described as follows:

Beginning at the Southeast corner of said Lot 1, thence North along the East line of said Lot 1 for a distance of 50 feet, thence Northwesterly for a distance of 200 feet to a point of intersection with the North right-of-way line of the Des Moines Union Railway Company; thence Southeasterly along the said north right-of-way line to the point of beginning; and except the North 150 feet of Lots 1, 2, and "C"; and except that part deeded to the City of Des Moines, Iowa as recorded in Book 5048 page 641; all now included in and forming a part of the City of Des Moines, Polk County, Iowa, being more particularly described as follows:

Beginning at a point at the intersection of the West right-of-way line of Southwest 17th Street and the South right-of-way line of Wabash Street; thence along the South right-of-way line of Wabash Street, which has an assumed bearing of S 89°56'36" E, with all subsequent bearings referenced therefrom for a distance of 354.83 feet; thence S 00°00'00" E, for a distance of 2,032.03 feet; thence N 63°23'18" W for a distance of 200.00 feet; thence N 45°35'56" W for a distance of 1,071.39 feet; thence along a circular curve concave northeasterly having a chord bearing of N 19°55'10" W and a radius of 411.82 feet for a distance of 369.15 feet; thence N 05°37'00" E for a distance of 14.02 feet; thence along a curve concave easterly having a chord bearing of N 23°23'59" E and a radius of 389.90 feet for a distance of 241.59 feet; thence N 41°09'02" E for a distance of 12.08 feet; thence along a circular curve concave southeasterly having a chord bearing of N 66°19'13" E and a radius of 458.69 feet for a distance of 403.00 feet; thence S 89°57'05" W for a distance of 231.82 feet; thence along a circular curve concave southeasterly having a chord bearing of S 52°45'52" W and a radius of 508.69 feet for a distance of 205.68 feet; thence S 41°10'52" W for a distance of 12.08 feet; thence along a circular curve concave easterly having a chord bearing of S 32°18'31" W and a radius of 439.90 feet for a distance of 136.24 feet; thence N 66°29'20" W for a distance of 92.80 feet; to a point on the approximate high water line which is a random line along the Raccoon River, said line being described with the following five courses: thence N 37°56'19" E for a distance of 403.52 feet; thence N 21°22'22" E for a distance of 259.11 feet; thence N 05°02'55" E for a distance of 296.98 feet; thence N 14°13'57" W for a distance of 257.23 feet; thence N 38°31'48" W for a distance of 208.51 feet; thence along a circular curve concave southerly having a chord bearing of S 75°21'31" E and a radius of 1,879.10 feet for a distance of 249.79 feet; thence S 71°33'01" E for a distance of 415.63 feet; thence S 00°08'29" W for a distance of 402.63 feet to the point of beginning, containing 42.264 acres, more or less.

CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD	BEARING
1	411.82'	369.15'	356.92'	S 19°56'16" E
2	389.90'	241.59'	237.74'	S 22°31'31" W
3	458.69'	403.00'	390.16'	S 66°27'37" W
4	508.69'	205.68'	204.28'	S 53°07'21" W
5	439.90'	136.24'	135.70'	S 32°23'07" W
6	1879.10'	249.79'	249.60'	N 75°21'31" W

PROPERTY ZONED M-2, SUBJECT TO CITY OF DES MOINES, IOWA ZONING ORDINANCE.

ELEVATION BENCHMARK:
BENCHMARK NUMBER 1-82-28
LOCATION 1100' WEST OF BUILDING 300 S.W. 16TH STREET
DESCRIPTION: TRIANGLE CUT IN TOP OF NORTH-SOUTH RETAINING WALL SOUTH END EAST SIDE RACCOON RIVER 1/8 MILE SOUTH OF FLEUR BRIDGE
ELEVATION 35.23 CITY OF DES MOINES DATUM

Asphalt Concrete Min. 6" depth consisting of Minimum of 4-1/2 inches of 3/4 inch type A base and 1-1/2 inch type A surface material.

Asphalt Concrete Min. 3" depth consisting of Minimum of 2-1/2 inches of 3/4 inch type A base and 1/2 inch type A surface material.

NATURAL DRAINAGE AND WET LAND

BOUNDARY LINE

SANITARY SEWER

NOTE: ALL MANHOLE CASTINGS TO BE EXTENDED AND REMAIN ACCESSIBLE.

MATERIAL AND PLACEMENT SPECIFICATIONS

Minimum of 65 percent crushed aggregate with that retained on the number 4 sieve being type 4 or better frictional classification. Asphaltic cement content shall be in the range of 5-1/2 to 6-1/2 percent and conform to a mix design utilizing the Marshall Stability Method. The average void content shall be a minimum of 3 percent and a maximum of 8 percent and the contractor shall cut 4 inch diameter cores as directed from the finished pavement for the testing of density, thickness, composition and void content.

SITE PLAN

☐ APPROVED ☐ APPROVED WITH CONDITIONS See Exhibit "A" attached hereto.

IN ACCORDANCE WITH SECTION 2-205.17(c), 1975 DES MOINES MUNICIPAL CODE, AS AMENDED, NO CHANGES TO THIS PLAN UNLESS APPROVED IN WRITING FROM THE PLANNING DIRECTOR.

DATE _____ PLANNING DIRECTOR _____

PREPARER AND CONTACT PERSON
JERRY SHANHOLTZER
TITAN WEST INTERNATIONAL INC.
2701 SPRUCE ST.
QUINCY, IL 62301
(217) 221-4390

SITE PLAN
for
DICO INC.
200 S.W. 16TH STREET
DES MOINES IA.

DATE
8/11/94

SCALE
1"=100'

REV.
8/29/94

DRAWN BY
Jerry Shanholtzer

APPROVED BY

CLIENT
DICO INC.
200 S.W. 16th ST.
DES MOINES, IA.

SHT. TITLE
SITE PLAN

SHT. NO.
1
DMSITE

APPENDIX E

HEALTH & SAFETY PLAN

SURFACE REMEDIATION

DICO, INC.
DES MOINES, IOWA

AUGUST 1994

DES MOINES ASPHALT & PAVING

CONTENTS

1.0 INTRODUCTION

This Health & Safety Plan (HASP) has been developed to provide both general procedures and specific requirements to be followed by Des Moines Asphalt & Paving (DMAP) personnel while performing work at the DICO, Inc. facility in Des Moines, Iowa. The plant is located at 200 SW 16th Street and is referred to by the USEPA as the "Des Moines TCE Site". A work plan has been developed by Titan Wheel International with the objective to remediate the surface soils at DICO.

This HASP describes the responsibilities, training requirements, protective equipment, and standard operating procedures to be used by DMAP personnel to address potential health and safety standards while performing their work. This plan specifies procedures and equipment to be used by DMAP personnel during work activities and emergency response to minimize exposure to DMAP personnel to potentially hazardous materials.

1.1 IMPLEMENTATION OF THE HASP

The requirements and guidelines presented in this HASP are based on a review of available information and an evaluation of potential onsite hazards. This HASP incorporates by reference the applicable OSHA requirements in 29 CFR Part 1910 and 29 CFR Part 1926. DMAP personnel are required to read this HASP before beginning work onsite. This HASP will be available for inspection and review by DMAP employees, and DICO and USEPA representatives while work activities are underway. When conducting the site remediation activities listed in the Work Plan, DMAP personnel will comply with this HASP. Onsite DMAP personnel will notify the DMAP Site Safety and Health Coordinator (SSHC) of matters of health and safety. The SSHC is responsible to the Project Manager (PM) for monitoring activities, monitoring compliance with the provisions of this HASP, and for modifying this HASP to the extent necessary if site conditions change. This HASP is specifically intended for the conduct of activities at the site described herein for the DICO plant. Although this HASP can be made available to interested parties for informational purposes, DMAP does not assume responsibility for the interpretations or activities of any persons or entities other than the employees of DMAP.

1.2 PROJECT ORGANIZATION

All personnel involved in the activities at DICO implicitly have a part in

implementing the HASP. Among them, the PM and the SSHC, they have the specifically designated responsibilities. Their names and telephone numbers are listed in Attachment 1.0.

Key project personnel and their responsibilities with regard to the Work Plan are discussed below.

Project Manager (PM) - The PM is responsible for the overall administration and technical execution of the project. The PM is further responsible for the acquisition and delegation of resources necessary for project completion and HASP implementation.

Site Safety & Health Coordinator (SSHC) - The SSHC for this project reports to the PM, coordinates his activities with Titan Wheel and establishes operating standards and coordinates overall project safety and health activities for the site. The SSHC reviews project plans and revisions to plans to determine that safety and health procedures are maintained throughout the work. The SSHC audits the effectiveness of the HASP on a continuing basis and suggests changes, if necessary, to the PM.

2.0 HAZARD ANALYSIS

The task to be conducted during the remediation include:

- General surface preparation.
- Ground surface compaction.
- Rock subbase application.
- Asphalt cap application.
- Asphalt compaction.

Detailed descriptions of these task are presented in the Work Plan. Site activities will be conducted in accordance with the procedures described in the Work Plan. The potential health hazards and contaminant control procedures for each task are discussed below.

2.1 GENERAL SURFACE PREPARATION

2.1.1 POTENTIAL HEALTH HAZARDS & CONTAMINANTS

There is the potential for contact and inhalation of airborne particulate matter that may potentially contain hazardous materials such as aldrin, dieldrin, heptachlor, chlordane, 2,4-D, 2,4,5-T, dioxin, and organic solvents.

The primary route of exposure are inhalation or airborne dust, skin contact and ingestion of food contaminated with the dust. Potential health affects associated with aldrin and dieldrin include headache, dizziness, irritability, loss of appetite, nausea, muscle twitching, convulsions, and loss of consciousness. Chlordane and heptachlor may cause damage to the nervous system, digestive system, and to the liver. 2,4-D and 2,4,5-T may irritate the eyes, nose, throat and skin, and may impact the central nervous, cardiovascular, digestive, and respiratory systems. Dioxins may cause chloracne, liver damage, cancer, and affect the digestive, immune, and reproductive systems. Potential adverse health effects include headaches, dizziness, irritability, nausea, and loss of consciousness. The levels have been reported as milligrams of chemical per kilogram of dust or soil (mg/kg).

2.1.2 HAZARD AND CONTAMINANT CONTROL

During normal working conditions the hazard potential will be minimal. In the event of dry dust and soil is present and windy conditions exist wetting down of the material will be performed to avoid the potential of airborne contaminants.

2.2 GROUND SURFACE COMPACTION

2.2.1 POTENTIAL HEALTH HAZARDS & CONTAMINANTS

There is the potential for contact and inhalation of airborne particulate matter that may potentially contain hazardous materials such as aldrin, dieldrin, heptachlor, chlordane, 2,4-D, 2,4,5-T, dioxin, and organic solvents.

The primary route of exposure are inhalation or airborne dust, skin contact and ingestion of food contaminated with the dust. Potential health affects associated with aldrin and dieldrin include headache, dizziness, irritability, loss of appetite, nausea, muscle twitching, convulsions, and loss of consciousness. Chlordane and heptachlor may cause damage to the nervous system, digestive system, and to the liver. 2,4-D and 2,4,5-T may irritate the eyes, nose, throat and skin, and may impact the central nervous, cardiovascular, digestive, and respiratory systems. Dioxins may cause chloracne, liver damage, cancer, and affect the digestive, immune, and reproductive systems. Potential adverse health effects include headaches, dizziness, irritability, nausea, and loss of consciousness. The levels have been reported as milligrams of chemical per kilogram of dust or soil (mg/kg).

2.2.2 HAZARD AND CONTAMINANT CONTROL

During normal working conditions the hazard potential will be minimal. In the event of dry dust and soil is present and windy conditions exist wetting down of the material will be performed to avoid the potential of airborne contaminants.

2.3 ROCK SUBBASE APPLICATION

2.3.1 POTENTIAL HEALTH HAZARDS & CONTAMINANTS

There is the potential for contact and inhalation of airborne particulate matter that may potentially contain hazardous materials such as aldrin, dieldrin, heptachlor, chlordane, 2,4-D, 2,4,5-T, dioxin, and organic solvents.

The primary route of exposure are inhalation or airborne dust, skin contact and ingestion of food contaminated with the dust. Potential health affects associated with aldrin and dieldrin include headache, dizziness, irritability, loss of appetite, nausea, muscle twitching, convulsions, and loss of consciousness. Chlordane and heptachlor may cause damage to the nervous system, digestive system, and to the liver. 2,4-D and 2,4,5-T may irritate the eyes, nose, throat and skin, and may impact the central nervous, cardiovascular, digestive, and respiratory systems. Dioxins may cause chloracne, liver damage, cancer, and affect the digestive, immune, and reproductive systems. Potential adverse health effects include headaches, dizziness, irritability, nausea, and loss of consciousness. The levels have been reported as milligrams of chemical per kilogram of dust or soil (mg/kg).

2.3.2 HAZARD AND CONTAMINANT CONTROL

During normal working conditions the hazard potential will be minimal. In the event of dry dust and soil is present and windy conditions exist wetting down of the material will be performed to avoid the potential of airborne contaminants.

2.4 ASPHALT CAP APPLICATION

2.4.1 POTENTIAL HEALTH HAZARDS & CONTAMINANTS

With the application of the rock subbase the ground surface will, in effect, be capped. This will make the potential for airborne particulate matter with potentially hazardous materials almost nonexistent. There is the potential for contact and inhalation of airborne particulate matter that may potentially contain hazardous materials such as aldrin, dieldrin, heptachlor, chlordane, 2,4-D, 2,4,5-T, dioxin, and organic solvents.

The primary route of exposure are inhalation or airborne dust, skin contact and ingestion of food contaminated with the dust. Potential health affects associated with aldrin and dieldrin include headache, dizziness, irritability, loss of appetite, nausea, muscle twitching, convulsions, and loss of consciousness. Chlordane and heptachlor may cause damage to the nervous system, digestive system, and to the liver. 2,4-D and 2,4,5-T may irritate the eyes, nose, throat and skin, and may impact the central nervous, cardiovascular, digestive, and respiratory systems. Dioxins may cause chloracne, liver damage, cancer, and affect the digestive, immune, and reproductive systems. Potential adverse health effects include headaches, dizziness, irritability, nausea, and loss of consciousness. The levels

have been reported as milligrams of chemical per kilogram of dust or soil (mg/kg).

2.4.2 HAZARD AND CONTAMINANT CONTROL

During normal working conditions the hazard potential will be minimal. In the event of dry dust and soil is present and windy conditions exist wetting down of the material will be performed to avoid the potential of airborne contaminants.

2.5 ASPHALT CAP COMPACTION

2.5.1 POTENTIAL HEALTH HAZARDS & CONTAMINANTS

With the application of the asphalt cap the ground surface will be capped. This will make the potential for airborne particulate matter with potentially hazardous materials almost nonexistent. There is the potential for contact and inhalation of airborne particulate matter that may potentially contain hazardous materials such as aldrin, dieldrin, heptachlor, chlordane, 2,4-D, 2,4,5-T, dioxin, and organic solvents.

The primary route of exposure are inhalation or airborne dust, skin contact and ingestion of food contaminated with the dust. Potential health affects associated with aldrin and dieldrin include headache, dizziness, irritability, loss of appetite, nausea, muscle twitching, convulsions, and loss of consciousness. Chlordane and heptachlor may cause damage to the nervous system, digestive system, and to the liver. 2,4-D and 2,4,5-T may irritate the eyes, nose, throat and skin, and may impact the central nervous, cardiovascular, digestive, and respiratory systems. Dioxins may cause chloracne, liver damage, cancer, and affect the digestive, immune, and reproductive systems. Potential adverse health effects include headaches, dizziness, irritability, nausea, and loss of consciousness. The levels have been reported as milligrams of chemical per kilogram of dust or soil (mg/kg).

2.5.2 HAZARD AND CONTAMINANT CONTROL

During normal working conditions the hazard potential will be minimal. In the event of dry dust and soil is present and windy conditions exist wetting down of the material will be performed to avoid the potential of airborne contaminants.

3.0 SITE SECURITY & CONTROL

3.1 SITE SECURITY

Site security will be monitored and controlled by the PM and the SSHC. Their duties will include limiting access to the work area to authorized personnel, overseeing project equipment and materials, and overseeing work activities. The procedures specified below will be followed to control access to each work area to minimize exposure of persons who may be unaware of site conditions and site related hazards. Work area control procedures may be modified as required by site conditions.

3.2 SITE COMMUNICATIONS

Telephones are located at the site security office of the facility and in the Production Building. These will be used during onsite activities to facilitate communications for emergency response and other purposes and to serve as the primary offsite communication network. If available, a cellular telephone will provide backup for the facility phone.

4.0 EMERGENCY RESPONSE

4.1 NOTIFICATION OF SITE EMERGENCIES

In an emergency, site personnel will signal distress either verbally or with three blast from a horn (vehicle horn, air horn, and so forth). The SSHC and PM will immediately be notified of the nature and extent of the emergency. Emergency telephone numbers are displayed in Attachment 1.0.

A map showing the location and the route to the Methodist Medical Hospital is provided in Attachment 2.0. Directions to the hospital from the site are: Exit the site, turning left onto 16th street. At Locust Street, turn right and proceed until the intersection of 10th Street, at which point turn left. Follow 10th Street to Pleasant Street and turn left on Pleasant. The hospital will be in view at this point.

4.2 RESPONSIBILITIES

The SSHC is responsible for responding to, or coordinating the response of offsite personnel to, emergencies. In the event of an emergency, the SSHC will direct notification and response, and will assist the PM in arranging follow-up actions. Upon notification of an exposure incident, the SSHC will call the hospital, fire, and police emergency response personnel for recommended medical diagnosis, treatment if necessary, and transportation to the hospital.

The SSHC and the PM are responsible for investigating any incident as soon as possible. The PM will review the incident investigation report to determine whether and to what extent exposure actually occurred, the cause of exposure, and the means to prevent similar incidents. The resulting report must be signed by PM and the SSHC.

4.3 ACCIDENTS AND INJURIES

In the event of an accident or injury, workers will immediately implement emergency isolation measures to assist those who have been injured or exposed and to protect others from potential hazards. Upon notification of an exposure incident, the SSHC will contact emergency response personnel who can provide medical diagnosis and treatment. If necessary, immediate medical care will be provided by personnel trained in first aid procedures. Other onsite medical or first aid response to an injury or illness will be provided only by personnel competent in such matters.

4.4 SAFE REFUGE

The Production Building will be considered the place of refuge for DMAP workers during emergencies. In case of an emergency, personnel in the exclusion zone should evacuate the work area both for their own safety and to prevent hampering rescue efforts. Following an evacuation, the SSHC will account for site personnel. If further evacuation is necessary, the project vehicles will be used to transport personnel to the Production Building as designated by the PM.

4.5 FIREFIGHTING PROCEDURES

A fire extinguisher meeting the requirements of 29 CFR Par 1910 Subpart L, as a minimum, will be available at the work site. This is intended to control small fires. When a fire cannot be controlled with the extinguisher, the work site will be evacuated, and the fire department will be contacted immediately. The SSHC will determine when to the contact fire department.

4.6 EMERGENCY EQUIPMENT

The following equipment, selected based on potential site hazards, will be maintained at the work site for safety and emergency response:

- Fire extinguisher
- First aid kit

4.7 EMERGENCY SITE COMMUNICATIONS

Hand and verbal signals will be used at the work site. Portable onsite telephones may be available during site activities for emergency response communications.

4.8 SECURITY AND CONTROL

Work site security and control during emergencies, accidents, and incidents will be monitored by the SSHC. The duties of the SSHC include limiting access to the work site to authorized personnel and overseeing emergency response activities.

5.0 SPECIAL PRECAUTIONS AND PROCEDURES

The activities performed at the site may expose personnel to both chemical and physical hazards. The chemical hazards associated with specific activities are discussed in Section 2.0. The potential for exposure to hazardous situations will be significantly reduced through the use of hazard awareness, training, and administrative and engineering controls. Other general hazards that may be present at the work site are discussed below.

5.1 HEAT AND COLD STRESS

The timing and location of the project may be such that heat and cold stress could pose a threat to the health and safety of site personnel. The SSHC will implement work and rest regimens so that DMAP personnel do not suffer adverse effects from heat or cold. These regimens will be developed by the SSHC following the guidelines in the current edition of the ACGIH *Threshold Limit Values for Physical Agents in the Work Environment*. Special clothing and an appropriate diet and fluid intake will be recommended to DMAP personnel involved in the activities specified in Section 2.0 to further reduce this hazard. In addition, ice and fluids will be provided as appropriate in the work zone.

5.2 HEAVY MACHINERY/EQUIPMENT

DMAP personnel involved in the project may use or work near operating heavy equipment and machinery. DMAP workers will exercise extreme caution in the vicinity of operating equipment and machinery to avoid physical injury to themselves or others.

5.3 ADDITIONAL SAFETY PRACTICES

The following are important safety precautions that will be enforced during the completion of the activities listed in Section 2.0:

1.0 Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in areas were the surface is being disturbed and airborne particulate matter is being generated.

2.0 Hands and face must be thoroughly washed prior to leaving the work site and

before eating and drinking.

3.0 Contact with potentially contaminated surfaces should be avoided whenever possible. Workers should minimize walking through puddles, mud, or other discolored surfaces; kneeling on ground; and leaning, sitting, or placing equipment on drums, containers, vehicles, or the ground.

4.0 Medicine and alcohol can mask the effects of exposure to certain compounds. Consumption of drugs must be at the direction of a physician.

5.0 DMAP personnel and equipment in the work site will be minimized consistent with effective site operations.

6.0 Unsafe or inoperable equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.

7.0 The HASP will be reviewed frequently for its applicability to the current and upcoming operations and activities.

8.0 Work will be suspended during any weather conditions that are sufficiently extreme to potentially affect the adequacy of this HASP or the integrity of the equipment. Examples include electrical storms, tornado warnings, heavy snow fall, heavy rain or extreme heat or cold. The PM, with the recommendation of the SSHC, will make the determination to suspend work.

ATTACHMENT 1.0

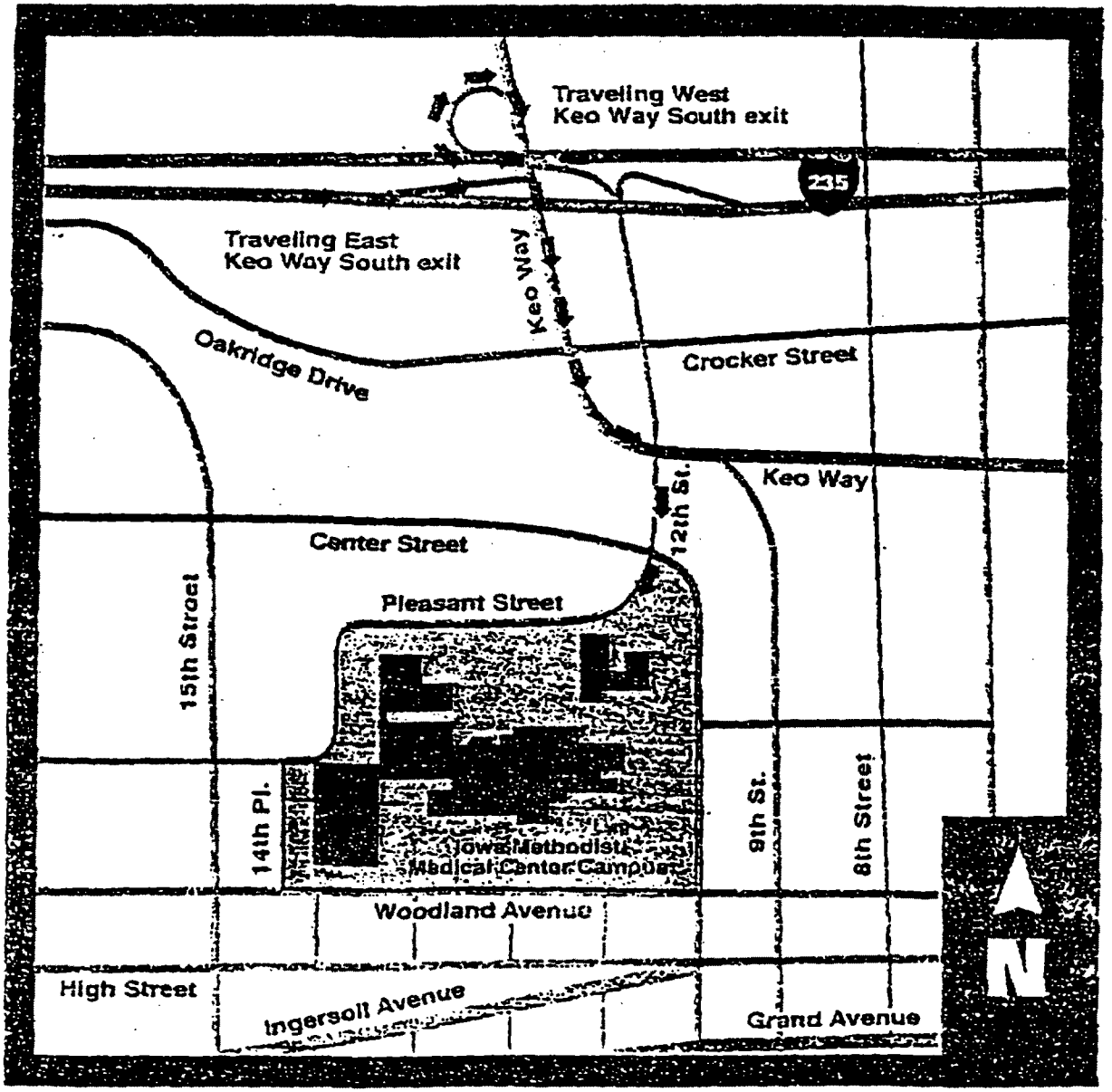
EMERGENCY TELEPHONE NUMBERS

LOCATION	TELEPHONE
Fire Department	911 or 283-4197
Police Department	911 or 283-4800
Ambulance	911 or 283-3111
Poison Control Center	1-800-282-3171
Chemical Emergency Advice	1-800-424-9300
Methodist Medical Hospital	241-6212
National Spill Response Center	1-800-424-8802
Doug Kollbaum DICO - Plant Engineer	244-7286
Jim Fechter Titan Wheel - Project Manager	1-217-221-4461

ATTACHMENT 2.0

MAP OF HOSPITAL LOCATION

Iowa Methodist Campus



DIRECTIONS TO EMERGENCY ROOM

EXIT JOBSITE BY REAR GATE (FASTEST ROUTE)

PROCEED NORTH ON S.W. 16th STREET

- PASS ELECTRICAL SUB-STATION ON RHS
- CROSS MULTIPLE RAILROAD TRACKS

TURN RIGHT AT LOCUST STREET (~~FIRST TRAFFIC LIGHT~~ Stop Sign)

- PROCEED SIX BLOCKS

TURN LEFT AT 10th STREET

- PROCEED NORTH FOUR BLOCKS
- FOLLOW AMBULANCE SIGNS

TURN LEFT AT PLEASANT STREET

- PROCEED UPHILL AND AROUND HOSPITAL
- FOLLOW AMBULANCE SIGNS

EMERGENCY ROOM IS ON (FAR) NORTHEAST SIDE.

TOTAL P.03